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ABSTRACT

Past research recommends emphasis upon the development of thinking as a curricular objective and the use of Hilda Taba's teaching strategies for developing children's thinking. The purpose of this ESEA Title 3 in-service program was to produce teachers who could plan, implement, and evaluate teaching activities for each of Taba's cognitive tasks, and who could utilize these methods in appropriate places in the learning process. To achieve this objective, an inductive in-service educational program that balanced theory and practice and that approximated the kind of learning sequences and approach used in the classroom was administered to 27 teachers, 3 principals, 4 supervisors, and 3 curriculum directors for 1 year. The feedback received during the program stimulated modifications in it. Results indicated that the program was effective in changing teacher classroom verbal behavior. Summative evaluation led to the acceptance of new hypotheses in regard to Taba in-service education and pointed to way toward studies yet needed. (See ED 032 318-ED 032 323, TE 499 893, and TE 499 894 for the TABA Social Studies Curriculum.) [Not available in hard copy due to marginal legibility of original document.] (Author/LH)

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STRATEGIES FOR SOCIAL STUDIES:
An Open-Ended Design

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OVERVIEW OF THE PROGRAM

STRATEGIES FOR SOCIAL STUDIES

Program Components

The content focus of "Strategies for Social Studies" is based upon the teaching strategies of the late Dr. Hilda Taba. These teaching strategies for developing children's thinking were identified, clarified, and systemitized by Dr. Taba and her associates in the Curriculum Development Project at San Francisco State University.

In disseminating these strategies, the coordinator has relied heavily on awareness conferences, so called because the aim was to involve people in thinking about Taba Strategies rather than training people to use the approach.

The training program consisted of two levels, one designed for teacher in-service, the other for Taba leaders. The entire teacher in-service ideally consists of approximately 60 hours of training, the leadership training consists of an additional 100 hours. In practice, however, both groups received far less training time than was considered ideal. Released time was made available only to teaching personnel from the leadership group. Little consultant help was necessary because of the availability of the Taba In-Service Education materials from the Institute of Staff Development.[1].

Strategies for Social Studies also provided demonstration facilities and awareness conferences in the value clarification strategies of Dr. Merrill Harmin and Dr. Sidney Simon [2]. Presentations to committees or groups studying their local social studies curricula were made, with the Tabe Curriculum Criteria [3] serving as guidelines.

The Coordinator of the program was Fred Miller. He was assisted in program evaluation by Dr. Raphael Lewy and Carmen DeAngelis. Half-time secretarial services were ably supplied by Catherine Ekkebus.

The professionals trained included 12 teachers from District #23, Prospect Heights, Illinois and 25 leaders. The 12 teachers included 6 from each of 2 elementary schools, 4 each at grade levels 3, 4, and 5. The leadership group included 15 teachers, 3 principals, 4 supervisors, and 3 directors of curriculum. The 25 leaders included 13 from the consortium's immediate service area and 12 from areas beyond the consortium (8 within Cook County, 4 outside of Cook County).

The office of the program was at the Elk Grove Training and Development Center, 1706 West Algonquin Road, Arlington Heights, Illinois. The training of the teacher group was done after school alternately between the two participating schools from Prospect Heights, Illinois. The leadership sessions were full day sessions held throughout the year at a meeting room of a restaurant in Mount Prospect, Illinois. The value clarification demonstrations were hosted by James Sheehan at Arlington High School, Arlington Heights, Illinois.

Although Strategies for Social Studies has been identified as being especially appropriate with the Taba Social Studies Curriculum, the teaching strategies are appropriate for any inductive process-orientated curriculum whether social studies or not. In other parts of the country this in-service program is being used for training of teachers in science, math and linquistics.

RATIONALE

The Need for a Different Approach to In-Service Education

Curriculum Innovation

As school systems become increasingly engaged in curriculum innovation, the need for better trained teachers becomes more pressing. Most new instructional programs emphasize two major objectives: 1) subject matter and learning experiences that contribute to the development of selected concepts and generalizations that are valid, significant, and transferable to other experiences, 2) teaching strategies and learning experiences that support and encourage inquiry and the development of higher level thought processes.

The accomplishment of these objectives requires teachers to function as question-askers and facilitators of the learning process. Unfortunately, most teachers have not been trained to teach in this manner. Educators at all levels are becoming increasingly aware that if curriculum innovation is to be productive and have tenure, school systems must provide opportunities through in-service education for teachers to understand and utilize teaching strategies that involve students in learning experiences which serve a variety of individual needs. Further, the results of such in-service education programs must be ovservable so that school systems can justify expenditures of limited time and money.

Problems of Implementation

The design and implementation of such in-service education programs present several problems for administrators and teachers. First, a training program which will accomplish the two objectives described above must provide continuing opportunities to link theory with classroom practice.

A frequent criticism of teacher education, both pre-service and in-service, is that lectures and other presentations of theory are often too far removed from practical applications in the classroom. There is no doubt that teachers need a better theoretical understanding of both curriculum content and teaching strategies, but, if what they learn is to lead to change in teacher-student behavior, then they need frequent opportunities to apply new knowledge and skills in classroom situations. Thus, rotation between theory and practice should be sequenced in amounts small enough to be manageable for the classroom teacher. Although the traditional concentrated one- or multi-week workshop may be easier to administer, it often fails on two counts - lock of opportunity for rotation and heavy reliance on expository techniques that implicitly reinforces the idea, "Do as I do, not as I say to do."

Secondly, it is difficult to hire qualified consultants who understand the complexities of in-service training, who are experienced in training teachers in inductive methods, and who are available on a basis that stiisfies the needs for both flexible and frequent scheduling of training sessions. The cost of their services would be prohibitive, so that the result is an inevitable shortage of qualified consultants. Hence, the necessity for developing in-service leaders within the local system.

The third problem is time. Time pressures on both teachers and administrators require that in-service programs be adaptable to a variety of schedules -- short after-school sessions, Saturday sessions, release-time meetings, etc., depending upon the needs and desires of the participants.

Other factors, such as funding, teacher incentives, and supervisory follow-up must be considered in setting up an effective system for teacher development. The program that is described in the following pages attempts to attain the objectives and resolve the problems that have been discussed thus far.

Background and History

The Social Science Program at the Elk Grove Training and Development Center was started as a cooperative program with the Social Sciences Curriculum Study Center at University High School, University of Illinois, Urbana, Illinois under the direction of Ella C. Leppert.

This cooperative agreement had grown out of the participation of Elk Grove School District #59 as a Demonstration Center under the Illinois Plan for Program Development for Gifted Children sponsored by the Office of the Superintendent of Public Instruction in the State of Illinois. A coordinator was appointed for the Social Science Program in January, 1967. A resource library was started consisting of available Social Studies Project materials and training and research materials for continuing education of teachers. Plans were started for a summer workshop in social studies.

In April 1967 the first coordinator accepted another position and a new coordinator was appointed. Plans for the summer workshop were continued. Since the second coordinator had prior commitments for the summer, it was necessary to appoint a director for the summer program. Carl Rose of Forest View High School in District #214 accepted the interim position of director of the Summer Workshop in Social Studies. Teams of teachers from six school districts were participants. Each team selected particular social studies project materials which was to be used in a teaching situation with children in summer school. Project materials which were used included Hilda Taba's Contra Costa Social Studies Program, A Social Science Program of the Educational Research

Council of Greater Cleveland, University of Illinois Social Science Curriculum Study, and the Amherst Project in History and Social Science.

As a result of feedback from the summer workshop and discussions with teachers and administrators, it seemed that the greatest area of need and interest for supporting services in social studies exist in the elementary school. Thus the emphasis of the Social Science Program for the year 1967-68 was placed on the development of services in the use of innovative social studies materials and methods at the elementary school level.

Workshops were designed to explore the teaching of thinking in social studies and the teaching of values in the social studies curriculum. The focus of these training programs was to be on process or method and the concern was with human interaction in the classroom, using content as a vehicle of communication.

In the final year of the grant, Fred Miller was hired as coordinator. The program was renamed Strategies for Social Studies and moved from a development project to a training project. The content focus was limited primarily to Teaching Strategies for developing children's thinking. This was done in response to the interest generated by the exploratory seminar on Thinking held by the former coordinator.

Background and Objectives

The Tabe In-Service Education Program -- Teaching Strategies for Developing Children's Thinking -- is the result of many years of research and development by the late Hilda Taba, internationally recognized as a leader in curriculum development and learning theory. She and her staff at San Francisco State College worked with dozens of elementary school teachers to evolve a social studies curriculum and in-service education program that emphasized the systematic development of major thinking skills and processes around significant content. Through many years of experience, Dr. Taba came to the realization that curriculum innovations would be short-lived and often emasculated unless teachers were provided opportunities through in-service education to deal effectively with the following needs [4]:

A. The need to understand that learning experiences serve for both mastery of content and development of specifiable mental processes.

B. The need to know how to substitute specific selections of content that serve the same pedagogical functions, so that teachers can adapt a curriculum to the varying needs of their students.

C. The need for teachers to know how to adjust the pacing of cognitive processes according to the range of abilities in their groups.

D. The need to alter some present teaching strategies rather radically; the need to learn to formulate and to use open-ended questions, instead of depending on expository and prescriptive teaching, and to plan developmental learning sequences.

E. The need to master the skill of diagnosing student feedback (data from discussions, writing, and research) in terms of mastering both content ideas and cognitive skills.

In attempting to fulfill such needs and to provide teachers with a theoretical understanding of curriculum development and practical knowledge of a variety of teaching techniques, Dr. Taba and her staff evolved a model for in-service education. Since her death, several of Dr. Taba's close associates have continued her work and have produced an in-service system, based on her original model.

Supporting Documentation

The fundamental assumption of Strategies for Social Studies is that thinking skill development is a valid and attainable curricular objective. In order for this to be possible, it was necessary first for research to provide a precise analysis of the processes and of the psychological dynamics of the mental activity we call thinking. Piaget [5], Sigel [6], Bruner [7], and Guilford [8] provided Hilda Taba with the theoretical and empirical basis upon which to identify trainable cognitive skills. It was then necessary for Taba to test the hypothesis that "under optional conditions training would result in an acceleration of the usual developmental sequence, such as the appearance of abstract or formal thought" and find the relationship between abstract thinking and I.Q. test scores. She found (Thinking in Elementary School Children, 1964) [9] that children can learn higher level thinking skills at a much earlier age than had previously been conceived possible. Although Piaget was correct about the importance of maturation in the child's ability to see more abstract relationships for example, his listing of wide experience and social transmission were equally important aspects affecting thinking, making it possible for children to develop thinking skills three, four or five years earlier.

The question concerning the relationsiips between I.Q. test scores and thinking also shed some surprising light. Taba found a low corelation between I.Q. results and the ability to use thinking skills. Children identified as slow learners did just as well in cognitive functioning as long as teacher pacing was appropriate and the dependence upon reading for intake was minimal.

It became appropriate to then identify those factors that most heavily contributed to the children's success in developing thinking skills. Certain teaching strategies were identified as the major contributing factors. Along with propre pacing and sequencing the outstanding result of Taba's second study, Teaching Strategies and Cognitive Functioning in Elementary School, 1966 [10], was that teachers get, in terms of level of thought, that which they seek and expect. The three cognitive tasks identified by Taba were broken down into three levels of thought each. For each thought level, if we wished children to overtly respond in a way that demonstrated the appropriate covert mental processing, there were appropriate generic eliciting questions.

Taba, therefore confirmed the following hypothesis of her second study:

1) "If the students were given a curriculum designed to develop their cognitive potential and theoretical insights, and if they were taught by strategies specifically addressed to helping them master crucial cognitive skills, then they would master the more sophisticated forms of symbolic thought earlier and more systematically than could be expected if this development had been left to the accidents of experience or if their school experiences had been guided by less appropriate teaching strategies -- and
2) "Teachers' actions were one of the most important influences in guiding the thought processes of students" [11].

Being apparent, from this study, that the teacher's role was central and powerful for students' cognitive development, the necessity for in-service training becomes all-important if we are to do more than pay lip-service to thinking as an instructional objective. The second study "left no doubt that certain teacher behaviors can be modified in ten days of training" [12], but such training must be a systematic in-service combining both theory and practice.

In articles and speeches on techniques of in-service training, Taba indicates the need for in-service that was paced and sequenced properly and was administered with the appropriate teaching strategies [13]. Such is the aim of Strategies for Social Studies.

PURPOSE

Considering the theoretical and empirical references cited in the rationale, Strategies for Social Studies has based its objectives upon several assumptions.

First, that thinking skill development should be one of the multiple objectives in an elementary school curriculum. The exploding amount of knowledge and rapidity of change suggests that an autonomous thinker who can make sense of the world around him is a valuable asset to our culture. We have learned from research more about what learners are like and about the nature of the learning process. We assume, therefore, that thinking skill development is a valid and attainable curricular objective. Actually, most curriculum guides for elementary social studies do, in fact, alude to thinking in their list of objectives.

If we are to do more than pay lip-service to thinking as an objective, we must define the skills in behavioral terms and consult the research as to its implementation. The research provides Strategies for Social Studies, its second assumption ..... If we want to implement thinking as an objective, we must use appropriate teaching strategies and properly select and organize learning experiences. Many curriculum planners enumerate objectives and end with the selection and organization of content. Taba has shown us that content meets only the knowledge objectives.

Our third assumption is that teachers can be trained to develop the appropriate teaching strategies. Hilda Taba's research as well as others, negates the idea that good teachers are born, not made. "Those operating on this assumption regard teaching as a sort of mystical art, the secrets of which a few 'good' teachers grasp intuitively. Such an assumption denies the possibility that teaching involves techniques and skills that can be learned by a great range of individuals, provided we can identify those techniques and skills and help teachers to master them" [14].

Lastly, it was believed that a teacher trained in the Taba strategies related to her three cognitive tasks would also develop a positive generic teaching strategy affecting the general classroom atmosphere.

The teaching strategies emphasized in the program are neither revolutionary nor new. They represent techniques that effective teachers have often used, but not always understood as far as purpose and function are converned. This program concentrated on providing teachers with a rationale for their teaching as well as methods for improving their skills in the use of particular strategies.

Yet there were some significant contributions in Strategies for Social Studies, such as its pattern for dissemination. It was assumed that an outside "expert" is limited by time and other factors in the number of teachers that could be trained. The focus on identified or potential teacher-leaders was a means by the program coordinator to supply local districts with an autonomous trainer who would train one or more groups of twenty-four teachers. It was assumed that two or more teachers from each twenty-four would be identified for further leadership training. The second year of local training would see more groups being trained, setting up a multiplier effect.

Although the specific goal is the training of teachers in teaching strategies for developing children's thinking, teachers found some significant side effects. They needed to listen closely to what children were saying during a classroom discussion, in terms of content and thought level. Functioning as a seeker of ideas rather than a giver of information, the pre-discussion planning of a content, process and cognitive map freed the teacher from wondering where to lead the discussion and emphasized the need to carefully atune to the dynamics taking place. No longer identifying children merely by I.Q. or reading level achievement but more by cognitive style and various styles of taking in and expressing information, the teacher could then individualize within a class both during and before discussion.

If a longitudinal study were to measure student objectives to corroborate the research of Taba, in addition to the increasing generality, complexity and abstractness of their conceptual style, certain attitudinal changes may well be noted, e.g.:

... the self-security that permits one to be comfortable in differing from others

... the open-mindedness that permits the examination of opinions and of individual ways with reasonable consideration and objectivity

... the acceptance of changes that allow one to adjust as a matter of course to new ways and events

... the tolerance for uncertainty and ambiguity with minimal anxiety [15].

Objectives

In April of 1967 the objectives of the Social Studies program were to provide an opportunity for social studies teachers to:

1. Familiarize themselves with and teach new social studies materials now being developed by major project centers

2. Implement new teaching techniques in relation to newly developed materials
3. Develop methods and materials that would supplement and vitalize existing curriculum in their own system

The second coordinator, Mary Kooyumjian, expanded the objectives to read as follows:

Instructional Objectives:

a) to develop a positive attitude toward Social Science
b) to learn about the content of the new materials
c) create flexible presentations of the new materials
d) learn the appropriate methods of inquiry and inductive teaching
e) implementation of the social studies in the total curriculum
f) encourage team teaching techniques in the social studies

Mrs. Kooyumjian's Social Science Program developed a more refined listing of objectives as follows:

1. to provide a theoretical background for variety of teaching strategies (Guilford, Flanders, Gallagher, Taba, Torrance, Maslow, etc.)
2. to provide an open environment in which it is "safe" for teachers to try out new ideas and methods
3. to develop understanding and ability to use teaching strategies for teaching "thinking skills" as outlined by Taba
4. to understand and differentiate "thinking" operations as divergent, convergent or evaluative
5. to be willing to operate in a different role as teacher -- to be a motivator rather then the knowledge expert or the purveyor of knowledge

6. to be able to define specific objectives to be accomplished
7. to acquire abilities to ask different questions which require different thinking operations
8. to share with other educators the materials, methods, techniques, problems, failures, and successes experienced in the training programs

Because of interest generated in the Taba strategies, in September, 1968 Mr. Fred Miller's Strategies for Social Studies stated its objectives as follows:

Objectives for the Teachers -- upon completion of the program, teachers will be able to:

1. state the purpose and functions for each of the cognitive tasks used in the program
2. state the purpose of a discussion and organize a discussion possibilities plan for each cognitive task, both from material provided in the program and from material selected independently
3. conduct a discussion in the classroom using the question strategies appropriate to the task
4. evaluate the discussion to identify the exact function of each question used and to assess specific areas of success and difficulty
5. organize feedback from students in order to revise particular teaching strategies and state the reasons for such revisions
6. identify and utilize particular criteria for evaluating concepts and generalizations formulated by students
7. identify the type of content and the specific functions of each learning experience in a process curriculum unit

8. identify and select appropriate opportunities to use each of the teaching strategies in the program

Objectives for the Leaders -- In addition to attaining objectives for the teachers, the training leaders will be able to:

1. conduct and analyze a sensitizing experience for each unit
2. build discussion guides with a group of teachers in the same manner as their teachers
3. supervise the development of discussion guides by pairs of teachers
4. evaluate concepts and generalizations using the Taba Project evaluation system and demonstrate the use of this system with teachers
5. conduct analyses of selected problems using an overhead projector and tapescripts
6. conduct a group analysis of a process curriculum unit
7. conduct analyses of demonstration films
8. collaborate with a teacher in evaluating a classroom discussion using the criteria provided in the evaluation sheet; identify specific areas of difficulty and suggest specific strategies for improvement

The changing objectives show a trend from the broad focus of a developing program to the more limited focus on those aspects of the development that have stimulated interest, have been supported by research, and have shown to be attainable through training. The objectives of Strategies for Social Studies included serious attention to the basic questions of the Elk Grove Training and Development Center.

Willingness to Expose and Study Own Behavior

In each of the four units of in-service instruction the sequence of learning activities included at least two opportunities for classroom tryouts. The tryout phase began with building a discussion possibilities guide with a grade level partner and studying it in relation to a sample guide provided by the leader. The teacher then conducted and audio-taped discussion in her class. After this experience teachers, either alone, with a partner, or in conjunction with the leader, evaluated the tape recording using an evaluation form provided. For this purpose a Taba matrix was developed by the coordinator as well as using a five-page self-assessment form. From examining this self-evaluation instrument, it becomes apparent that the teacher would have objectively studied her verbal behavior in comparison to her discussion plan and the Taba criteria for that cognitive task. When meeting again as an in-service group, the leader would ask "What did you notice about the children during your tryout?" and "What did you notice about your teaching behavior?"

Getting out the two lists of data would be followed by questions asking for cause and effect relationships between the two lists, accounting for these inferences, and generalizing from our experiences. In effect, the leader had used one of Taba's strategies to encourage exposure and study of one's own behavior and the experience of the group. Various kinds of reinforcement activities were used to further encourage self-examination. Demonstration films, tapescripts and problem modules from tapescripts encouraged analysis and opportunity to gain insight into one's teaching behavior.

Change in Role Perception

These insights gained provided teachers with a new perception of their classroom role. No longer a purveyor of information, this stimulation of activities and seeker of ideas should be able to say to a more traditional teacher, "the big ideas that come out of my class discussions haven't happened by accident. I have deductively planned what students can indictively experience, so that a thinking process as well as content is dealt with". Such a teacher saw herself developing this role as her skill in planning, questioning, and evaluating increased.

Skill Development

These skills included proficiency in the use of questioning strategies for Concept Formation, Interpretation of Data (Developing Generalizations), Interpretation of Attitudes and Feelings, and Application of Principles. The teacher has learned how to plan discussion possibility guides for each of the four tasks, units of instruction using the tasks, and skill in applying the appropriate criteria to the performance of her own students.

Relation of Above to Student Learning

When teachers can see their role and develop the skills suggested above, there are results in terms of students. The concepts students build are increasingly more abstract, accurate, and flexible. Their generalizations are more accurate and complete content-wise, and more abstract, qualified, and tentative process-wise. Students are more able to apply generalizations to new circumstances because teachers have continually stimulated the search for relationship.

The major purpose of Strategies for Social Studies then is -- teaching strategies for developing children's thinking.

ACTIVITIES

I. Overview

Strategies for Social Studies was involved in disseminating and training with the Taba In-Service Education Program and consulting with those interested in Taba curriculum development criteria or Taba's Contra Costa Social Studies Guides. Appendix A contains the sequenced syllabi for the two major workshops. Appendix B contains sample awareness conferences. The following is the in-service training model from which the coordinator of Strategies for Social Studies selected the content and activities for each group with which he worked.

II. Content of the Program

The content of the Taba In-Service Education Program is divided into seven units:

Unit A	Concept Formation
Unit B	Interpretation of Data (Generalizing)
Unit C	Interpretation of Feelings and Attitudes
Unit D	Application of Generalizations
Unit E	Analysis of a Process Curriculum
Unit F	Readings
Unit G	Analysis of Teaching Problems

The following provides a brief statement of the background and purpose of Units A-E:

Unit A Concept Formation

Background:

Concept formation is the first of three thinking tasks that Hilda Taba identified as appropriate for systematic development with elementary school children. This development is stimulated and guided by the teacher through the use of particular question sequences and teaching strategies. The strategies make it possible for the teacher to analyze more effectively the level of concept development and to encourage children to seek out new and more flexible relationships by developing their abilities to list, group, and classify information.

Purposes:

The materials and activities in this unit provide opportunities for teachers:

1. to develop proficiency in the use of questioning strategies involved in concept formation
2. to develop discussion sequence models, to utilize the models in their classrooms, and to evaluate their performance
3. to acquire some introductory theory about the nature of concepts and concept formation by children
4. to learn the criteria for evaluating concept formation and to apply the criteria to the performance of their own students

Unit B Interpretation of Data

Background:

Interpretation of Data is the second thinking task identified by Hilda Taba and her staff for systematic development. In this task students learn the intellectual processes involved in making inferences and formulating generalizations from information they have obtained. As was the case with Concept Formation, teachers help students develop these skills by means of particular question sequences and teaching strategies.

Purposes:

The materials and learning experiences in this unit provide opportunities for teachers:

1. to develop a proficiency in the use of question sequences and teaching strategies involved with Interpretation of Data

2. to develop discussion sequence models, to utilize the models in their classrooms, and to evaluate their performance
3. to acquire some introductory theory about the generalizing process
4. to learn the criteria for evaluating generalizations and to apply the criteria to the performance of their own students
5. to acquire additional knowledge and skill in working with students in group situations

Unit C Interpretation of Feelings and Attitudes

Background:
In many respects learning experiences dealing with feelings and attitudes are an extension of the Interpretation of Data task. Students need to develop the ability to make generalizations about situations that involve emotions if they are to become mature, rational human beings. Particular teaching strategies and question sequences are needed to help students learn how to interpret human actions.

Purposes:
In this unit we provide opportunities for teachers:

1. to develop a proficiency in the use of question sequences involved in situations dealing with feelings and attitudes
2. to develop discussion sequence models and to utilize the models in their classrooms, and to evaluate their performance
3. to develop the skills involved in the use of role-play as a means for examining social values

Unit D Application of Generalizations

Background:
The third cognitive task developed by Hilda Taba is concerned with the skills involved in applying present knowledge to new

situations in order to evaluate the success of developing generalizations and to extend and reinforce them. As with the other cognitive tasks, Application of Generalizations emphasizes the development of specific intellectual skills as well as new understandings. These are stimulated and guided by means of particular question sequences and teaching strategies.

Purposes:

The materials and activities in this unit will provide opportunities for teachers:

1. to develop a proficiency in the use of question sequences and teaching strategies for Application of Generalizations
2. to develop question sequence models and apply them to a variety of content areas
3. to make additional evaluations of generalizations produced by their own students

Unit E Analysis of a Process Curriculum Unit

Background:

The major responsibility of the Taba Curriculum Development Project has been to develop a process curriculum in the social studies for grades K-8. This curriculum, guided by the theories of Hilda Taba, has evolved over many years' work from the combined knowledge and experience of teachers and scholars. The significance of the Taba curriculum is the unique way in which content is organized and learning experiences are sequenced in order that teachers can guide students in developing significant concepts and ideas, important attitudes and feelings, as well as particular skills, especially those related to thinking.

Purposes:

The materials and activities in this unit provide opportunities for teachers:

1. to develop an understanding of essential ideas concerning curriculum development

2. to learn how to analyze curriculum units for the purpose and function of content
3. to learn how to analyze curriculum units for the purpose and function of learning experiences

III. Sequence of Learning Activities

Although the Taba In-Service Education Program is flexible and open-ended, careful attention has been given to designing a sequence between theory and practice. Just as important, however, is that the sequence embodies key principles of inductive learning. By participating in a sequence of inductive learning activities, teachers should arrive at a better understanding of the functions of learning experiences in a process-oriented curriculum.

In Units A-D, which focus sharply on teaching strategies, the sequence of learning activities is as follows:

1. sensitizing experience for each cognitive task
2. analysis of sensitizing experience and introduction to theory
3. development and analysis of a discussion possibilities model with entire group or in teams
4. development and analysis of a discussion possibilities model by grade level pairs
5. classroom tryout of discussion models
6. evaluation of classroom tryout
7. observation and analysis of demonstration films
8. analysis of problems in classroom discussion
9. evaluation of students' thinking
10. additional theory and summary
11. applications of the teaching strategies
12. additional readings.

A brief description of this sequence is provided in the following paragraphs.

PHASE 1 Sensitizing Experience

The first learning experience in each unit is designed to sensitize or acquaint teachers with the dynamics of the cognitive task. The objective is to provide them with a learning situation that is similar to one they would utilize with their students.

The next step is for teachers to analyze the experience in order to reconstruct its important elements. This provides the opportunity for participants to ask questions as well as for the leader to introduce the theoretical elements of the cognitive task.

PHASE 2 Group Practice

One of the key objectives of the program is to help teachers learn how to plan and conduct a classroom discussion that facilitates thinking. Following the sensitizing experience, the group divides into teams of five or six for the purpose of building a discussion plan. Such a plan consists of a stated purpose, the major focusing question for each thought level, supporting questions for purposes of clarification or extension, and possible responses that a teacher could anticipate but not demand from students. It should be emphasized that any plan is only a possible plan, for in reality no one can anticipate what will actually happen in a classroom. However, experience has demonstrated that unless teachers have some type of plan in mind, classroom discussion is usually unfocused and unrelated to productive thinking, thus, the emphasis on planning with a purpose.

PHASE 3 Individual Practice and Tryout

Following the team practice, each pair of teachers is asked to build a grade level discussion possibilities plan based on content that has been provided. The teachers are also provided with models to check against. Following this experience each teacher is to try out his plan with his students and record the discussion for evaluation purposes. Additional opportunities for classroom tryout are interspersed throughout the program based on similar worksheet plans and models.

PHASE 4 Evaluation of Classroom Tryout

After classroom tryout each teacher, either alone, with his partner, or in conjunction with the leader, evaluates a tape recording of his performance using an evaluation form. Observable and measurable change in performance can thus be demonstrated over a period of several tryouts.

PHASE 5 Analysis and Reinforcement

Reinforcement and additional insights are provided in three ways. One is through observation of classroom demonstration films. A second way is through analysis of tapescript of classroom discussions in which particular sequences and strategies are discussed. The third is through tapescript analysis of problems that commonly occur during classroom discussions.

PHASE 6 Evaluation of Student Performance

Evaluation of student performance should be an essential component in any in-service program. In the Taba program teachers are taught both informal and formal methods of measuring the development of students' cognitive skills. Particular criteria for assessing levels of thinking are developed for each thinking task. In the units on Concept Formation and Interpretation of Data formal testing instruments are also provided.

PHASE 7 Additional Theory, Summary, and Application

Earlier it was stated that the program combines theory with practice. Throughout each unit, readings are provided at appropriate times as are films dealing with elements of theory about the development of thinking. At the conclusion of each unit is a summary related to the application of the teaching strategies in the classroom.

EVALUATION

The first disseminative effort of Strategies for Social Studies (August, 1968) announced the program as "an open-ended design". From the onset Mr. Miller wished to stress his commitment to fluid programs that respond to changing needs and take full advantage of feedback from one activity as a means of improving the quality of the next.

Even prior to the release of the program brochure, the Coordinator visited curriculum representatives of consortium districts to determine their assessment of the previous T & D Social Studies program. It was this needs evaluation that led to formulation of the rationale and objectives of Strategies for Social Studies. The scope of the original program as announced in the enclosed brochure was further limited as the Coordinator assessed time and financial factors.

Once the program was under way, the prime instrument for obtaining feedback was the Strategies for Social Studies Feedback Inventory (see Appendix C). Having eight criteria in symantic differential format and three open-ended items, this provided a quick easy-to-use instrument that could easily be summarized on a single sheet of each session (see Appendix C). This instrument was used for training groups that met throughout the year as well as for awareness conferences. Although the Coordinator would recommend different feedback devices as appropriate to the varying purposes of the specific group, this system did make possible comparisions between groups. Asking for code numbers also made comparisons possible at various time intervals for feedback sheets furnished by the same person.

In addition to the prime instrument, Mr. Miller took full advantage of other opportunities to gain data to further modify the program on its presentation. The participants in the leadership group were also asked to complete a feedback sheet supplied by the Institute for Staff Development that made comparisons possible between feedback from participants trained in Chicagoland with over twenty other training areas throughout the country.

Feedback was also gained from process observations with the leadership group, Contra Costa opinionnaires with the teachers group, letters after awareness conferences and by the report furnished by the Outside Evaluation Team.

Although interpreting feedback from an entire year is a formidable task, the following is meant to summarize trends on the Feedback Inventory for each item and comment when appropriate on the item itself

ITEM # 1

A						B
I UNDERSTOOD what was presented today. Ideas were presented clearly.	A	a	X	b	B	I WAS NOT ABLE TO UNDERSTAND today's material. Clarity in presentation was lacking.

With hind-sight this Coordinator now sees how this item actually contains two criteria, both a self-assessment of knowledge gain and an appraisal of the clarity of presentation. It would be quite possible to have perfact understanding yet poor presentation and vice versa. This item was originally selected because although performance level is the ultimate goal, the program rotates between theory and practice with the belief (and observation) that knowledge of the theoretical underpinnings differentiates between the teacher able to copy a particular strategy and one able to appropriately modify that strategy to many variables (differing content, individual differences, etc.).

"STRATEGIES FOR SOCIAL STUDIES"

FEEDBACK INVENTORY SUMMARIES

NOTE: All figures in percentages of total response

			A	a	X	b	B	
TABLE "A" - District #23	1)	←	80	15	0	5	0	
	2)	←	46	43	6	4	1	
	3)		4	16	8	14	58	→
	4)		1	4	6	15	74	→
	5)	←	56	31	3	6	4	
	6)	←	66	22	9	2	1	
	7)	←	62	34	4	0	0	
	8)	←	78	16	6	0	0	
TABLE "B" - Leadership	1)	←	83	13	4	0	0	
	2)	←	49	50	1	0	0	
	3)		0	7	13	16	64	→
	4)		0	1	5	7	87	→
	5)	←	52	30	7	6	5	
	6)	←	70	28	2	0	0	
	7)	←	88	7	4	1	0	
	8)	←	87	9	4	0	0	
TABLE "C" - Awareness Conferences	1)	←	75	24	0	1	0	
	2)	←	62	27	8	3	0	
	3)		14	13	5	19	49	→
	4)		6	13	5	24	52	→
	5)	←	46	35	11	8	0	
	6)	←	72	20	8	0	0	
	7)	←	60	37	3	0	0	
	8)	←	89	11	0	0	0	

On this item, tables A, B, & C show that responses indicated a strong positive. The negatives all occurred in Table A on the session devoted to intake and activities related to analysis of thought levels.

A	ITEM # 2	B
PRODUCTIVITY was high. We were digging hard and were earnestly at work on a specific task. We achieved something.	A a X b B	PRODUCTIVITY was low. We were proud, fat and happy just coasting along. Our meeting was irrelevant.

Although this item also indicates a strong positive, Table B shows more positive than the other two. Perhaps the fact that all-day sessions were given to that group made possible more depth and a greater feeling of productivity. In Tables A & C the negatives occurred during the session where demonstration films and film analysis was first introduced.

A	ITEM # 3	B
INVOLVEMENT was lacking. I watched from the outside. I did not feel part of what was happening.	A a X b B	INVOLVEMENT was present. I was participating. I felt part of what was taking place.

It will be noticed that on this item the positive and negative items are reversed (as in Item #4 also). I attribute many of the negatives from Table C to the fact that with these groups (many of which met only one session) many hurriedly assumed all positives to be at the left. The negatives from Table A occurred on the session devoted to analyzing a video tape made by the Coordinator; the negatives from Table B seem to occur on the sessions where the leader analyzed or presented with the use of transparancies.

A	ITEM # 4	B
THE CONTENT was inappropriate to my own situation. It had no relevance to what I do daily.	A a X b B	THE CONTENT was meaningful to my own situation. I could see how this could apply to what I do during the week.

Table C's greater percentage of negatives could be due to the arrangement on the page (as in Item #3) and the greater difficulty of meaningful content when working with a group only once or twice. On Tables A & B the negatives show no pattern.

A	ITEM # 5	B
THE ACTIVITIES were paced and sequenced so that we smoothly progressed toward our goals. There were few jumps where we lost many, or repetive activities that bored us.	A a X b B	THE ACTIVITIES were poorly sequenced and paced. We were bored or lost. There was too much or too little of certain kinds of activities.

On this item all three tables show a similar pattern with negatives occurring in Tables A & B again at sessions heavy with audio-visual materials.

A	ITEM # 6	B
I WILL BE ANXIOUS TO USE some form of the strategies presented in my classroom	A a X b B	I WOULD NOT USE any of the activities in my own classroom

These tables show few negative responses on this item. Although the program guaranteed use by groups represented in Tables A & B, the Coordinator would have liked a follow-up to see if use occurs from various groups represented in Table C.

A	ITEM # 7	B
I'D FEEL COMFORTABLE with these strategies in my classroom. I could easily incorporate them into my style.	A a X b B	I WOULD NOT FEEL COMFORTABLE with these strategies in my classroom. My style is too different.

The Coordinator is comforted by the positive response to this item but would have desired more negative response from groups represented in Table C as he doubts that these short sessions made it possible for the strategies to be easily incorporated in their style.

A	ITEM # 8	B
THE LEADER was open, flexible and accepting	A a X b B	THE LEADER was inflexible, rigid and rejecting

The Coordinator was overwhelmed by the response to this item and was pleased to see a trend from "a" to "A". The abundance of bouquets on Item #10 was equally pleasing. The suggestions given in Item #11 were often used and when not used, the Coordinator often would mention at the next session his rationale for not changing, e.g., time period of sessions.

Whereas the daily feedback inventory provided a continuous possibility for modifying the program or its presentation, the other formative procedures used provided comparisons with work of other trainees on different criteria. Table "D" summarizes the feedback sheet supplied to various Taba Leaders. It was administered about 2/3 through the training of the Leadership Group. For Items #4, 5, 7, 9, & 11 data was available for the local training group only.

In commenting on Table D, the Coordinator finds interpretation possible in the light of three questions and comparisons possible between the local and national feedback. The three questions are:

1) How does this reflect upon training program and its process?
2) How does this reflect upon the training materials?
3) How does this reflect upon the trainer?

TABLE "D"

Questions 1 and 2: On the following list of activities, please check the three which you think have been most helpful to you in improving your classroom teaching. Please draw a line through the three that have been least helpful.

Note: When all items were tallied and the least helpful subtracted from the most helpful, this was the order of preference.

Item	National -	Order of Preference	- Local
a. Sensitizing experience and analysis of it	2		1
b. Group planning of discussion possibilities guide	3		4
c. Planning of grade level discussion possibilities guide	5		5
d. Classroom tryout and evaluation	1		2
e. Observation and analysis of demonstration films	7		10
f. Analysis of tapescripts of classroom discussions	8		7
g. Discussion of problem sequences on transparencies	10		9
h. Readings	6		6
i. Exercises on evaluating children's thinking	4		3
j. Viewing and discussing Dr. McNaughton's films	9		8

Question 3: Up to this point in the program, in what specific ways has your teaching changed?

	National	Local
Not answered:	8	
1. I've become more open and accepting of children's ideas. I talk less and listen more. I give the children more chance to express themselves. I encourage them to contribute to the discussion.	138	18
2. a) I'm more concerned about the types of questions I ask and the importance of questions, in general.	83	14
b) I ask more open-ended questions.	16	2
c) I'm asking more "whys" as well as "whats".	5	2
3. I'm encouraging the children to do more high level thinking.	72	-
4. I'm more organized now; I plan better and for a purpose.	13	-
5. Very little, or none.	16	-

Question 5: In what ways is this in-service program different from others you have been involved in?

1. Much longer	6
2. Variety of activities	2
3. More involvement	14
4. More structured	4
5. Relaxed and flexible	6
6. More depth	5
7. Process centered	5
8. No answer	3
9. This is my first	3
10. More audio-visual	2

Question 6: What specific suggestions do you have for improving this program?

	National	Local
Not answered	50	2
1. Time Factors		
a) Program should be less spread out	23	6
b) The time of day is bad	3	
c) Sessions should be shorter	3	2
d) Sessions should be longer	5	
e) Need more time for study	2	
2. Materials		
a) Better quality films	44	4
b) Films should be models	3	2
c) More legible transparencies	2	
d) Smaller manual	6	
e) Readings should be incorporated into the manual	2	
f) Glossary should be provided	3	
g) More material for primary teachers	11	2
h) More material in other subject areas	2	
i) More material for slow learners	4	
j) Stories should be shorter	3	
k) More stories to choose from	13	
l) Better stories	2	
3. Process		
a) Need to have opportunity to observe leader demonstrate Taba approach with children	30	
b) Need micro-teaching	2	
c) Need overview at beginning of program	10	2

	National	Local
d) Need summary of goals of program	5	2
e) Need more self-evaluation and evaluation of other participants		6
f) Need less time on concept formation		2
g) Need simpler, clearer, more organized presentation of program	7	
h) Need more on specific teaching strategies to bridge the gap between theory and practice	9	2
i) Need more help on application to our own curriculum	16	
j) Need less repetition in the program	10	
4. No category		
No improvement needed	14	
Question 7: Would you recommend this program to your fellow teachers?		
1. Yes! a must		8
2. Yes		11
3. Yes, but a more condensed program		3
4. Only to those who would be training others		3
Question 8: In what ways could the training leader be more helpful or effective?		
Not answered	37	14
1. The leader is very good	131	18
2. The leader needs to work more with individual teachers: observe classes, listen to tapes, and/or give feedback	23	6
3. The leader should allow more time to work in, rather than outside of class	11	4
4. The leader needs to have more answers, more experience, and better training	13	0

	National	Local
5. The leader needs to better organized	9	3
6. The leader needs more classroom experience	7	-
7. The leader should explain things more	10	-
8. The leader should explain things less	-	4
Question 10: In what ways has your participation in this program affected your students?		
Not answered:	42	3
1. Attitudinal		
a) They're more enthusiastic	51	6
b) They're participating more, even shy ones and less intelligent ones	77	12
c) They're talking more	10	2
d) They're feeling freer (less reluctant) to express their own ideas	22	8
e) They're trying harder to think through a problem	1	2
f) They're doing research on their own better	3	2
g) They're developing consideration for the view-points of others	6	2
h) They're more ready to listen to others	9	4
i) They like the novelty of these new discussions	3	-
j) They like my listening to them	2	-
k) They don't like my being absent from class in order to attend training sessions	8	2

	National	Local
2. Cognitive		
a) Their thinking skills are developing	19	2
b) They're improving in the way they look at and organize data	12	4
c) They're making better generalizations	11	-
d) They're thinking on their own better	11	6
e) They're reading more for knowledge: understanding rather than memorizing	4	-
f) They're listing and grouping	4	2
g) They're beginning to clarify their own statements, themselves	2	-
h) They're seeing cause-effect relationships more clearly	1	-
i) They enjoy Social Studies more		5
3. No Category		
a) Very little change because it's too early to tell	18	1
b) No change, period	11	-

Question 11: What is your general reaction to the program?

1	3	5	7
1 don't find it very helpful or interesting	OK, but hardly worth the time and effort for what I'm learning	I'm learning quite a bit and it's worth the time and effort	I'm very enthusiastic and it's really helping me

For Questions #1 and #2 the ten items will be discussed in the order of their appearance on the feedback form. Item "a" reflects most upon the trainer and then on the process, program, and materials in that order. In the local group, 63% of the respondants chose Item "a" as among the top three activities with none choosing it as "least helpful". The local trainer attributes this to his greater experience than most of the Taba Trainers, although on the national level, Item "a" did place second.

Item "b" reflects equally on the questions to be answered with slightly more light shed upon the program in terms of where this kind of activity was placed in the total sequence.

Item "c" was in fifth place on both national and local feedback. This item reflects most upon the process. The format for the planning of these discussion possibilities guides has been changed, which may well render their use even more effective. In the local group, more respondants (31%) chose this item as among the least helpful, than most helpful (19%).

Item "d" reflects most highly upon the process, then the trainer and the program. Yet, because there is often frustration and confrontation when analyzing one's own teaching behavior, this Coordinator expected this activity to be far less appreciated. Although this item appears second on the local and first on the national, the order on the local would have been changed had only two respondants chose not to include this item as among the least helpful. The two respondants were probably of the few administrators in the group who found such an activity more threatening.

Item "e" appears much higher at the national level. It reflects mostly upon the materials and program; 69% of the local group chose this as least helpful and only 6% as most helpful. This feedback has been used by the producers of the films, and all have been re-done.

Item "f" reflects upon materials and their order within the program. Both groups chose this item in low order of preference, and another means has since been found to provide the reinforcement of theory that was attempted in this manner.

Item "g" is similar in most respects to "f" but its use was more directed toward providing reinforcement after participants returned from classroom tryout experiences. This being a potentially crucial time in training, more meaningful activities have since been found.

Item "h" was placed sixth for both groups and provided additional theory for outside reading. It's place in the program was of minimal importance, and is apt to remain in its present form.

The local Coordinator was surprised to find Item "i" so high on national and local preference. He has hypothesized that the preference for this activity was inflated because the feedback was administered shortly after the introduction of this kind of activity.

Item "j" reflects upon the training materials and the program. Although these theoretical lecture films were of low choice in both groups, the program still wishes to alternate theory and practice and the lecture film is still better than providing additional readings, considering the complexity of the content introduced by Dr. McNaughton.

The data for Questions 3, 6 and 10 of Table "D" is self-explanatory. Feedback from Question 4 from the local feedback is especially gratifying in that this local area has been exposed to some of the finest in-service programs this Coordinator has seen.

The data from Question 8 reveals a weakness and a strength on the part of the local leader. Whereas 10 respondants to national feedback felt the leader should explain things more, 4 local respondants felt the leader should explain things less. The strength indicated is that the local leader was more knowledgeable in the theoretical underpinnings and ramifications of the process, yet the weakness indicated is a need for this local leader to be tempted less to elaborate on items of information.

For Question 11, no data for national norms is available. For the local group the mean response was 5.79 and the standard deviation was .093. Finally, for Question 7, all respondants would recommend the program with only 25% adding any qualification.

Another procedure used to gain feedback with the Leadership Group was the Hawkenshire Observation Procedure [16]. This method, crude but effective, provided data to be interpreted by the leader as well as the group participants. Simply stated, three different observations were made simultaneously of each ten-minute interval during some training sessions. One observor tallied the number of times various people spoke, one noted content of verbal exchange, and the last noted the communication process, stressing the non-verbal cues. From the data collected the leader became even more aware of the relation between his interaction with the group and various non-verbal cues given in response. The leader began also working on giving clearer and more concise directions and verbal responses as a result of this feedback. Members of the training group were also able to gain feedback as a result of this simple procedure. The two or three members who previously dominated discussions at least realized the extent of their participation. Non-participators were confronted by fellow trainees and interesting discussions followed whereby various modes and styles of participation were explored. In addition, we compared the kinds of observations made by various observors and received a valuable lesson in the variety of things an observor can see, and how one's subjectivity as observor can invalidate much of the data using such simple interaction devices.

If an in-service program is to insure tenure of innovative practices, such educational practices must be related to the ongoing curriculum in such a way as to institutionalize and thereby maintain the change even after the in-service has ceased. Although activities throughout each in-service unit are designed to relate the strategy to on-going teaching, the availability of Hilda Taba's Contra Costa Social Studies curriculum does provide the ideal framework for the institutionalization of the corresponding teaching methods. Simultaneous to Taba in-service, the teacher group also received specific help in the use of the Contra Costa Teaching Guides by three grade level leaders trained in the leadership group. Towards the end of the year an opinionnaire (see Appendix C) was administered to the twelve teachers of the pilot study concerning the use of the Taba curriculum. Although the directions indicated that feedback should relate to the curriculum rather than to the Taba in-service, there is obviously a difficulty in making this distinction for many items on the opinionnaire. The data is reproduced on the following page (Table E) also, because it might indicate the extent to which the three grade leaders were effective.

TABA SOCIAL STUDIES

OPINIONNAIRE SUMMARY

TABLE "E" -- (→ indicates the direction of the positive response)

		A	a	X	b	B	
1.		-	-	1	4	7	→
2.		-	-	1	5	6	→
3.	←	3	9	-	-	-	
4.	←	5	-	1	2	4	
5.		0	2	1	4	5	→
6.	←	3	5	4	-	-	
7.	←	5	5	2	-	-	
8.	←	5	4	3	-	-	
9.		0	3	1	3	5	→
10.		0	1	0	3	8	→
11.	←	3	5	1	0	3	
12.	←	3	6	0	2	1	
13.	←	4	2	1	3	2	
14.	←	4	5	0	1	2	
15.	←	6	5	0	1	0	

Verbal Comments:

16. I especially liked the line of questioning (3), the academic and social skills the children can learn (2), children can learn to think for themselves and express ideas (4), student participation (5), teaching strategies (2), varied source books (2), low ability children can participate (2), variety of projects suggested (1), children's enthusiasm (1), child orientated program (1).

17. I would change the way it is presented to teachers (1), the manual at 4th grade (4), more material appropriate to grade level (3).

18. Would you want to use this program again? Definitely, yes (2), Yes (4), Yes, if better supply of student material (4), If curriculum improved (2).

19. Would you recommend expansion of this program? Absolutely, yes (2), Yes (2), Yes if extra time is given to teachers for in-service (2), Yes, if supported adequately with student materials (5), No, unless 4th grade curriculum is changed (1).

To summarize the data, the teachers have felt in general, that pupil participation increased as the program progressed and children showed greater ability to discover and analyze relationships. Enthusiasm among pupils was considered to high while content was felt appropriate to half and inappropriate to theoth er half. Most teachers felt pupils acquired meaningful map, globe and research skills appropriate at their grade level.

Most teachers felt pupils were more able to express themselves, ask questions and maintain a higher level of attention. Also, teachers felt that: their own techniques of classroom presentation were affected by this program and that their personal effectiveness has been improved because of their participation.

They generally felt comfortable in working with the program and saw a great variety in the activities presented.

On the question of pacing, the teachers were split. Some felt pacing and sequence were smooth and others felt it was poorly done.

The majority of the teachers were in agreement that all student ability levels were involved.

In response to the open-ended questions, it seems apparent that the lack of classroom materials caused the greatest degree of frustration. In regard to question #19, the pilot teachers did recommend expansion of the Contra Costa Program to the school board, and all classes of grades one through five within the district will use this Taba curriculum next year.

In addition to the teacher feedback in regard to the Taba program, the students of the pilot teachers were asked to fill out a simple questionnaire in regard to their social studies classes this year. Table F contains the results. Social Studies is not usually the favorite subject for 3rd, 4th and 5th graders, yet 80% enjoyed the program and under 4% disliked Social Studies this year.

TABLE "F"

Felt part of	Don't know	Felt left out
230	56	35
Enjoyed	Don't know	Didn't enjoy
258	46	17
Learned much	Don't know	Learned little
245	48	28
Like	Don't know	Disliked
254	55	12

Finally, the Outside Evaluation Team [17] has assessed Strategies for Social Studies and recommended as follows:

> Assessment
>
> The program as a project is a carefully conceived model. It is based on what is considered by many experts in the area of social studies education to be one of the major innovative patterns. The Coordinator has developed some modifications and has placed his own individual stamp upon a number of the facets of the program which in the judgment of the evaluation Team is an important contribution to the second objective of the T & D, the diffusion and dissemination of innovative programs. The Coordinator appears to have done a superior job in stimulating interest and obtaining the active participation of a large number of school districts in a very short time. It must be noted, however, that it is regrettable that the project did not get this leadership two years ago as it could have easily been one of the larger and more energetic, as well as produc-

tive, model projects at the T & D Center. The lesson that is probably to be learned from observing this project is the focal leadership position of the MPC in the development of the model project as well as the promoting of activities which will encourage dissemination and diffusion.

Recommendations

1. The model project is very thorough in teaching a process concentrating on strategies in cognitive development. It does appear at this time to neglect the concerns of content selection. It is, therefore, recommended that attention be given to the use of content, particularly the structure of content and the internal relationships of disciplines in the social sciences. Further the importance of content to value analysis needs to be examined for inclusion in the model on social studies education.

2. Despite the late start the project seems to have generated a high degree of enthusiasm and the Coordinator is to be commended for his effort in getting the program under way. It is recommended that the T & D Center and the Coordinator contact school districts to seek continued support and follow-up in this program to ensure that it does not languish inasmuch as one year is a very short time to get an innovation established and firmly rooted.

In concluding the data on formative evaluation, be it noted that the local districts have seen fit to follow the recommendation concerning continuance of Strategies for Social Studies. Of the many model programs of our training and development center this program is the only one to be continued as a locally supported cooperative venture thus far. Letters of commendation have further convinced Mr. Miller that although the program has had to polish, and will continue to polish, rough spots, Taba In-Service has been well received and appreciated.

Summative Evaluation

Actually, much of the data reviewed under formative evaluation could have as easily been interpreted in this section. Opinionnaires and surveys do get at the question concerning the effectiveness of the in-service program, even if subjective. Being interested in analyzing more objective data, the Coordinator has reserved judgment until this section as to the result of the year's work.

The basic question is "Has the program met its outlined objectives?" or "Has the in-service in fact changed teaching behavior in desirable directions?"

In terms of the objectives (p. 15), the Coordinator realized that these statements were written in such a way as to assure them attainable by all who successfully completed the program. For example, the first objective reads, "To state the purpose and functions for each of the cognitive tasks used in the program". The intake necessary to accomplish this objective occurs three times in the in-service sequence: 1) after each awareness experience when an introduction to theory is presented with the aid of transparencies, 2) in Dr. McNaughton's theory films for each cognitive task, 3) in the data on the thinking retrieval chart (Appendix E). The chance to express this knowledge occurs in three places in the sequence also: 1) at the top of each discussion possibilities guide the participants builds, 2) when the participant evaluates his classroom tryout experience in the light of criteria related to the purpose and function of that task, 3) when the participant generalizes, near the end of in-service, with the aid of the thinking retrieval chart.

In other words, the Taba leader is getting continuous feedback as to whether the activities of the participant indicate mastery of this objective. If not, appropriate reinforcement activities are available. In like manner, the accomplishment of each of the objectives is monitored during the normal course of training.

An anecdotal tabulation of incidence of occurance or a content test at the end of each unit of in-service could well have been selected as the means of measuring the effectiveness of the program. The coordinator, wishing to contribute far more, chose instead instrumentation that would answer this question, "How has a teacher who has accomplished these nine program objectives changed?" Four instruments were chosen:

1. The Educational Practices & Ideas: Attitude Survey
2. The Minnesota Teacher Attitude Inventory
3. The Children's Thinking Test
4. The Taba Verbal Behavior Classification Matrix

The first two instruments were chosen with the assumption in mind that between teacher knowledge and teacher behavior change, there exists a substantial gap. All trainees could easily understand the nature and function of the teaching strategies, but it was expected that all would not be able to perform with the same degree of skill. Perhaps the attitude variable might help us interpret differences. The Educational Practices & Ideas: Attitude Survey (forms A & B) were designed by members of the Center's Evaluation Team. Form A was administered as a pre-test; form B was used for post-training results. When the test booklets were turned in for scoring and interpretation, the Evaluation Team suggested that the instrument had been found to be greatly lacking in reliability and its validity had become equally suspect. Having another, more recognized, attitude instrument, the results of the locally prepared survey were abondoned.

Table "F" contains the results of the Minnesota Teacher Attitude Inventory. Nine scores went up (116 points), three went down (38 points) for a total raw score gain of 78 points. This would average 6.5 points per participant representing a percentile gain of 5 for the median.

TABLE F

MINNESOTA TEACHER ATTITUDE INVENTORY*

Code No.	Raw Score		Percentile	
	Pre-Test	Post-Test	Pre-Test	Post-Test
255	87	91	80	90
193	68	41	60	30
879	52	50	40	40
681	43	34	30	25
795	32	48	25	40
10R	30	43	25	30
AA	31	48	25	30
389	27	52	20	40
I-22	18	28	10	20
083	13	28	10	20
RE	4	18	10	20
S	4	6	10	10
Median	34.08	41.00	25	30

* Districts of 21 persons or more with four years of elementary school teacher training.

Prior to the onset of the training program, Fred Miller hypothesized the direction of teacher change due to in-service as follows:

1) More student talk; less teacher talk
2) More behavior acceptance by teacher; less rejection by teacher
3) More productive and critical thinking; less recognition memory
4) More teacher seeking; less teacher giving information

These hypothesis were made while examining the CERLI Behavior Classification Matrix (see Appendix C). It seemed as though the above four changes were desirable, obtainable after Taba training, and measurable by the CERLI Matrix. The Coordinator sent three persons to the Cooperative Educational Research Laboratory, Inc. (CERLI) for training in the use of the Matrix system.

This Matrix system was designed to serve as a mirror to the teacher and students describing who is speaking, to whom the speaker responded, the kind of comment to which the speaker responded, and the subsequent response by the speaker. This instrument was said to be a compilation of the best of Taba, Guilford, Bloom and Flanders and has had increasing use throughout our local area.

In order to test these four hypothesis, the Coordinator chose to sample the total population of those trained and deal only with the twelve teachers from School District #23. Being interested in the substance and process of the verbal exchange for teacher self-assessment, as well as for summative evaluation, Mr. Miller chose to record the classroom discussions. Audio rather than video recording was done, so as to eliminate the non-verbal data which was not needed and might further threaten the teacher.

Teacher classroom discussions were taped four times during the year. The first should have been prior to training, but circumstances made this impossible. The first taping was actually done after 7 hours of in-service given over a two-month period. The tape was to be an example of Taba's Task I - Concept Formation. Seeing that we didn't actually have a true pre-training tape anyway, we used the data as feedback to teacher for self-assessment and decided to call the next classroom tryout the "pre-tape". This was done because the next three tapings were to be on Task II - Interpretation of Data, and comparing them, although far from a real pre-post, would provide a cross section of training during the same unit of in-service.

Although the next three taping experiences shared cognitive task in common, with each, another variable was added in order to increase, in steps, the complexity of the task. The second taping (our "pre-tape") was done in early February. Teachers were given the purpose and content of the task before building their discussion possibilities guides and then checked their guides with a leader-built "model". The third tape (data not reported in this paper) was done in mid-March. For this experience, participants chose their own subject for the discussion possibilities guides and then discussed their completed guides with the leader before trying out the plan in class. The fourth taping (our "post-test) was made in early May. In addition to choosing one's own content, the teacher was to also select the appropriate time for taping within the regular sequence of classroom activities. In addition, the leader provided no feedback on the plan, but only after the taping was complete.

Prior to the second taping therefore, there were 16 hours of group in-service; between the second and fourth, there were 7-1/2 hours of training; and about 2-1/2 hours spent after the fourth taping.

While training continued, there were many changes in the Matrix used for data gathering. The CERLI Matrix was temporarily abandoned for the Taba Coding System. Finding this three dimensional system costly in observor time, effort was made to develop a Matrix that would gather the data necessary for summative reporting and be more Taba-orientated for use in providing feedback to trainees. Fred Miller derived the first Taba Verbal Behavioral Classification Matrix (Appendix C). This is actually a combination of Taba Coding scheme with a CERLI Matrix. In re-training the observors, the Coordinator found some obstacles to the continued use of this instrument. There was no means to differentiate between divergent factual and convergent factual, and there was no place to tabulate classroom management or emotion. Yet this instrument did provide some good feedback to trainees in that teacher-seeking behavior was divided as to pedagogic function and student-informing behavior was divided as to whether it was above, at, or below the thought level of the question asked by the teacher or other student.

The next instrument tried dropped pedagogic function as too difficult a dimension to pick up simultaneous to other observation chores and added a column to include management, emotion and convergent factual (all tallied together as this data was not needed separately but only for percentage of teacher or pupil talk). Another modification occurred that was primarily additional rules of thumb to observors. The main change in this new Matrix was a try at dividing thought levels into seven categories rather than the four as done previously. The final Matrix (Appendix C) returned to four levels at the substance dimension, and although retaining three levels for student-informing, in practice all responses were tallied "at" thought level unless the teacher specifically requested otherwise.

When time dictated a need to finalize the data gathering method, the Coordinator still had doubts as to instrument. Also, rather than three observors, only two were trained. Reliability studies ranging from .93 (R_{xy} - observor to observor) using Rho to .82 using the Contingency Coefficient and high instrument reliability (two measures by same observor) satisfied Mr. Miller that it was safe to proceed.

While analyzing the taped classroom discussions, the Coordinator became aware of the potential difficulty in comparing data from tapes that varied so greatly in length. Therefore the observors began again, this time recording data from only the first, middle, and last five minutes of each tape. As the average discussion length was slightly under 45 minutes, we therefore captured about one-third of the total discussion. The decision to sample at three places in the tape rather than one increased the validity of the procedure as the Interpretation of Data Task begins at the factual level and proceeds to inferencing and generalizing. A sample at the beginning, for example, would make measurement of the fourth hypothesis impossible.

When the 48 matrixes were completed, the data was organized so as to lend itself to interpretation in relation to the four hypothesis. The eight evaluative criteria are as follows:

ST (student talk) - a total of all 24 cells below the triple line on the final Matrix

TT (teacher talk) - a total of all 16 cells above the triple line

TS (teacher seeks) - a total of all 4 cells of first row

TI (teacher informs) - a total of all 4 cells of second row

TA (teacher accepts) - all 4 cells of third row

TR (teacher rejects) - all cells of fourth row

1 + 2 (factual level) - a total of all 20 cells of first two columns

3 + 4 (inference + generalization level) - 20 cells of last two columns.

Therefore, hash marks from the Matrix appear in more than one criterion, e.g., teacher asks, "Who discovered America?" This would be tallied in the cell at the upper left of the Matrix. But it would be a component of the TS, TT, and 1 + 2 scores.

Once the data was organized as mentioned above, Mr. Miller used a crude percentage technique to summarize the data (Table G, p. 62) The percentages of Table G were arrived at as follows: using the first criterion on Teacher #1 as an example, ST was tallied at 27 instances whereby TT occurred 48 times. Therefore total talk was 75. The 36% is the relationship of ST (the variable hypothesized to increase) to total talk. Following across, the post tape shows 40% of total talk coming from students. M (movement) indicates 4% increase of the desired variable. The major difficulty in continuing with the system begun above is that each variable is analyzed in relation to another of a pair, whereas the hypothesis was that one of the pair would increase and the other decrease. Simple totals would also be needed, especially if both variables of the pair would increase or decrease.

At this time, the data was turned over to the Evaluation Team. Mr. Lowell Simmer and Mr. Paul Schroeder returned to the Coordinator Table H. They measured reliability in five ways: (Table H, p. 63)

1. Observor to observor on the pre-tape
2. Observor to observor on the post-tape
3. Observor 1 pre-tape to his post-tape
4. Observor 2 pre-tape to his post-tape
5. Composite of both observors pre-tape to post-tape composite

Measuring consistency from all directions, Table H shows Rho (Spearman Rank Order Correlation) from .81 to .98. Chi square was used to illustrate the significance of the change (at the .01 level). Not only did both observors apply the same criterion of judgement, vigorous statistical procedure indicated that there was definitely a change in teacher classroom verbal behavior.

In discussing this change in relation to the four hypothesis, let us refer to Table I. This table shows the totals of each of the eight variables for both observors on all twelve teachers. (Table I, p. 64)

Hypothesis: More ST; less TT

Result: Hypothesis confirmed in both cases (using percentages from Table G, the average percent increase - after subtracting decreases - in the positive variable was 3.50%)

Hypothesis: More TS; less TT

Result: There was in fact more TS but also more TI (using the percentages in Table G, there was an average loss of 2.25% on the positive variables when compared with TS + TI)

Hypothesis: More TA; less TR

Result: Hypothesis rejected using Table I but a compilation from Table G shows an average increase of 4.58% [18]

Hypothesis: More 3 +4; less 1 + 2

Result: Hypothesis accepted in both cases with Table G showing an overwhelming average change of 14.33% of the positive variable

In commenting on the results, the Coordinator rues the day he let circumstances prevent an "actual" pre-test. He believes that all four hypothesis would be overwhelming accepted had this in fact been the case. Also due to the fact that the time sample was so small, the acceptance of 2-1/2 hypothesis is not at all upsetting. Also, had he this to do over again, while the four hypothesis suited a true pre and post Taba in-service evaluation design, different and perhaps more suitable criteria would be used for such a limited time-sample. In rejecting the acceptance-rejection hypothesis, it might well be a factor of when the time-sample was made. It could well be further hypothesized that the greatest positive change occurrs for these variables early in the program, followed by a plateau and then a drop as the teacher becomes more concerned with the intracacies of questioning strategy. The fact that the last hypothesis showed a large rise in critical and productive thinking is appreciated, for that's the name of the game -- "Teaching Strategies for Developing Children's Thinking".

Does this method of teaching develop children 's thinking? A thinking test, developed by the Taba Curriculum Development Project (Appendix C) was administered to the twelve classes of children. A sample of one class at each grade level was made to analyze the results. Charts A through D relate the results for this sample; Charts E through L are results from the Taba Project. In all cases, pre to post changes seem insignificant, with local graphs resembling Project graphs. Much work is necessary in developing the instrumentation before conclusive statements can be made.

CHART "A" - Flexibility (Mochudi Story)
Local Sample Pre-Test N=56 $\bar{X}$=12.34

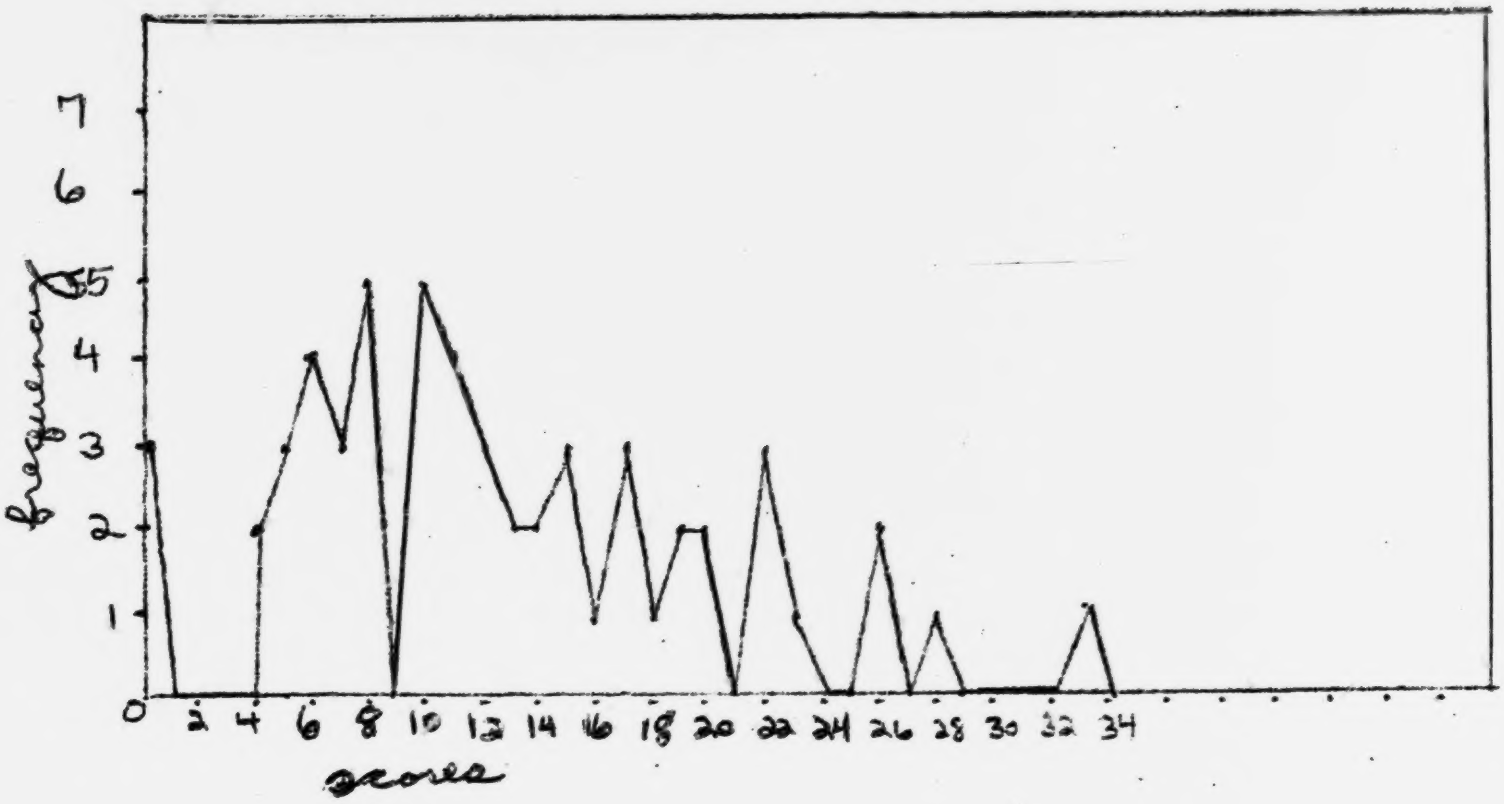

CHART "B" - Flexibility (Mochudi Story)
Local Sample Post-Test N=56 $\bar{X}$=13.11

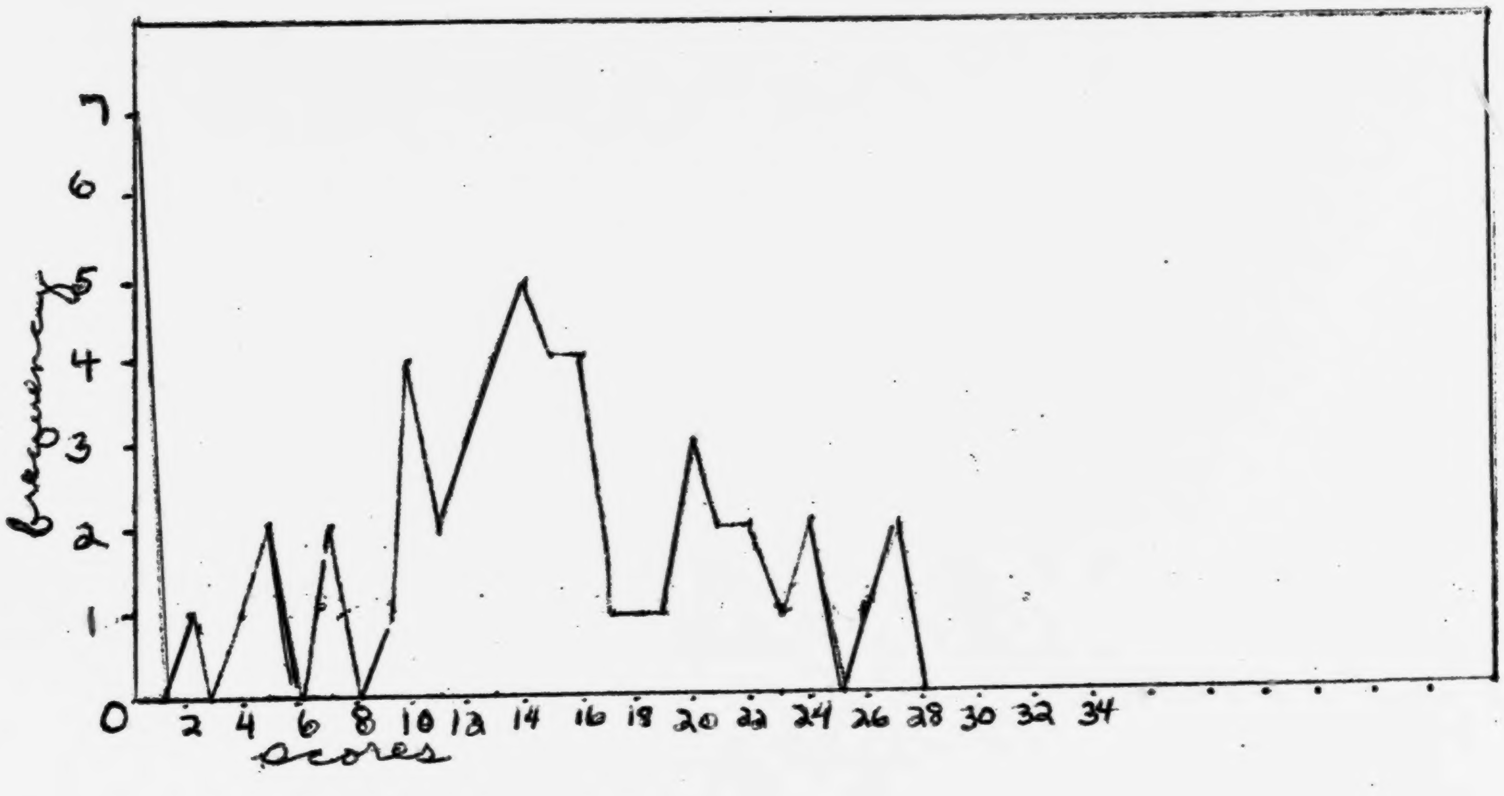

CHART "C" -- Generalizing (Tolox Story)
Local Sample Pre-Test N=74 $\bar{X}$=20.81

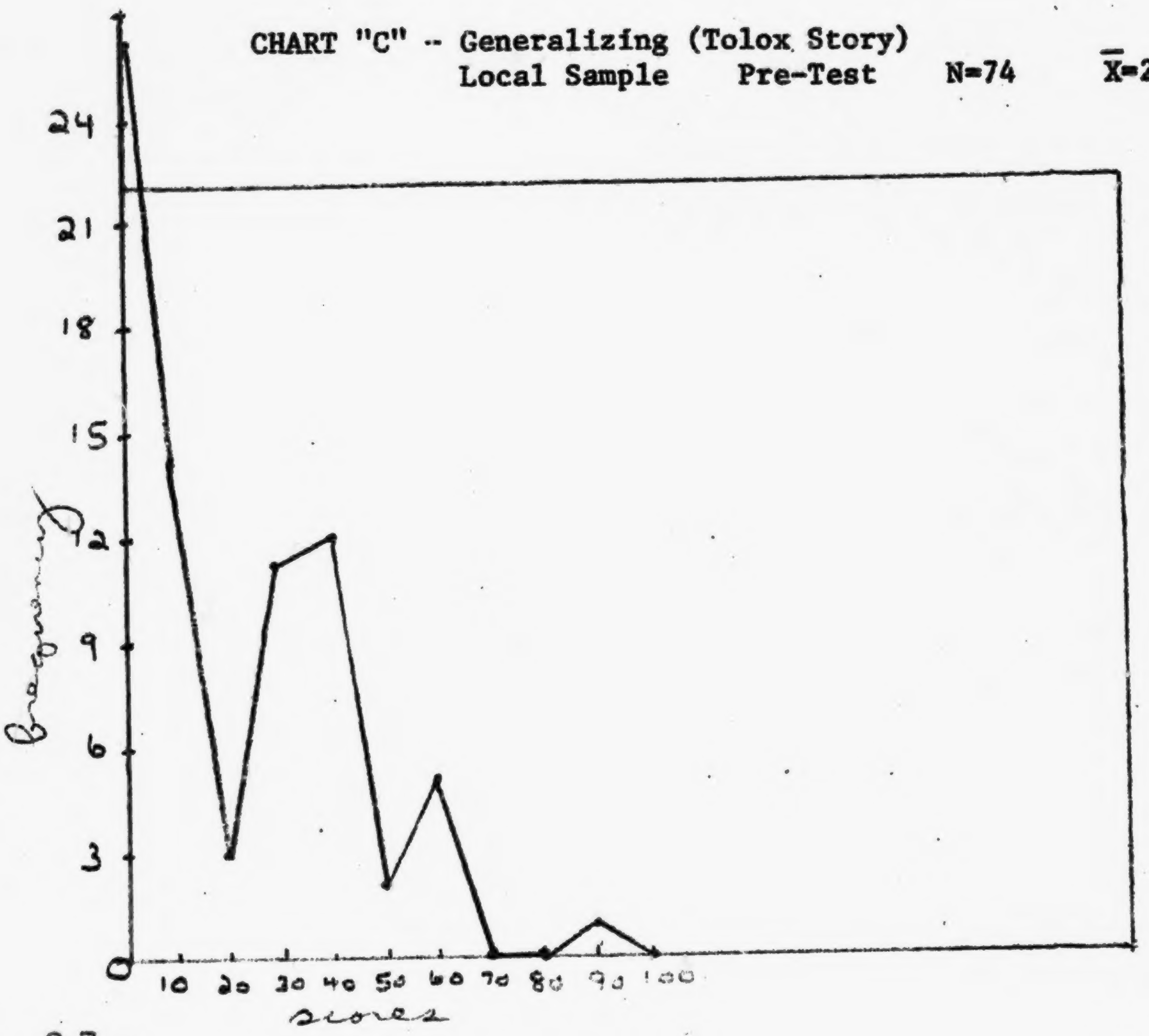

CHART "D" - Generalizing (Tolox Story)
Local Sample Post-Test N=74 $\bar{X}$=21.81

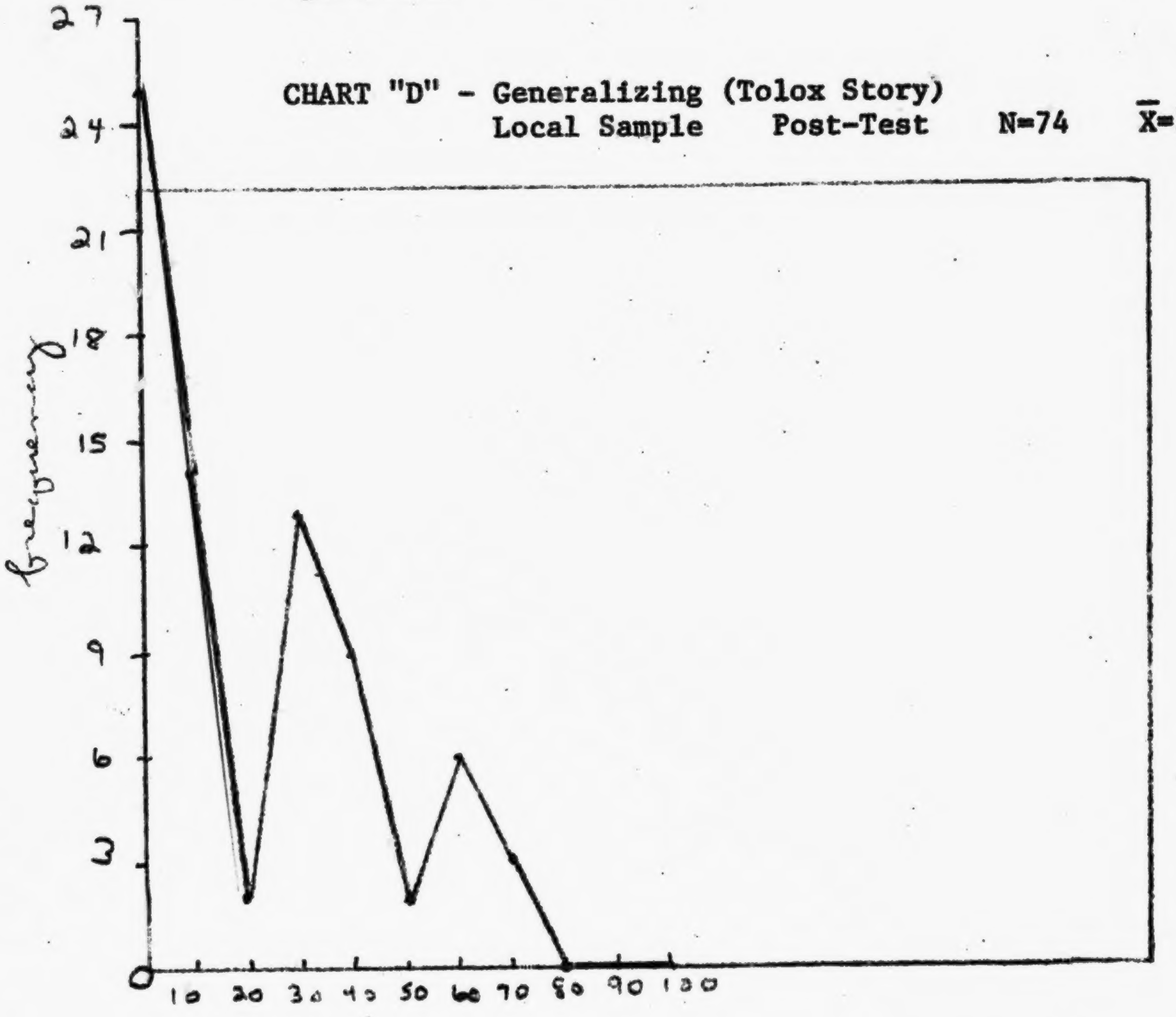

CHART "E" - Flexibility (Mochudi Story)
Taba Project Experimental Group Pre-Test N=144

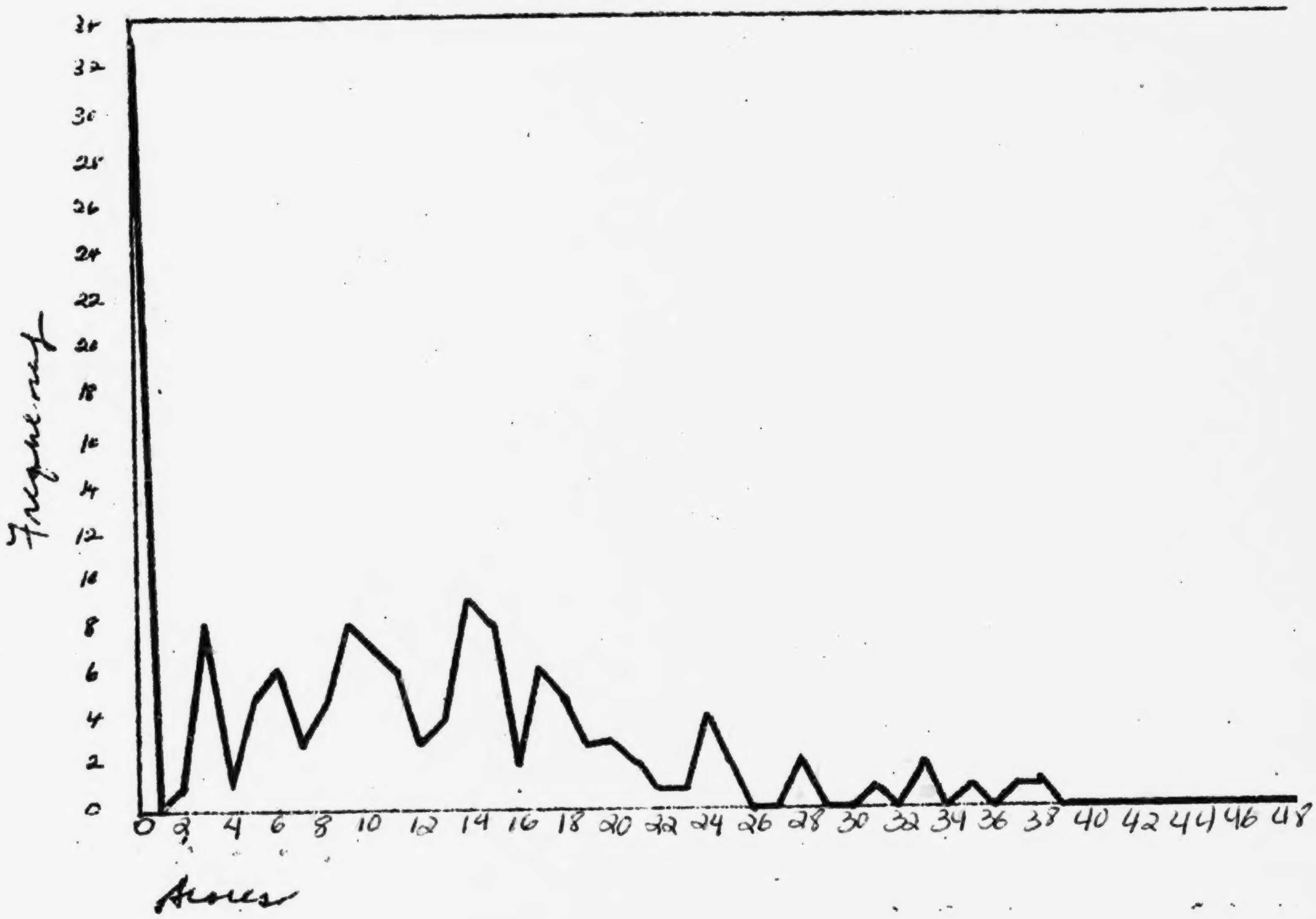

CHART "F" - Flexibility (African Story)
Taba Project Experimental Group Post-Test N=144

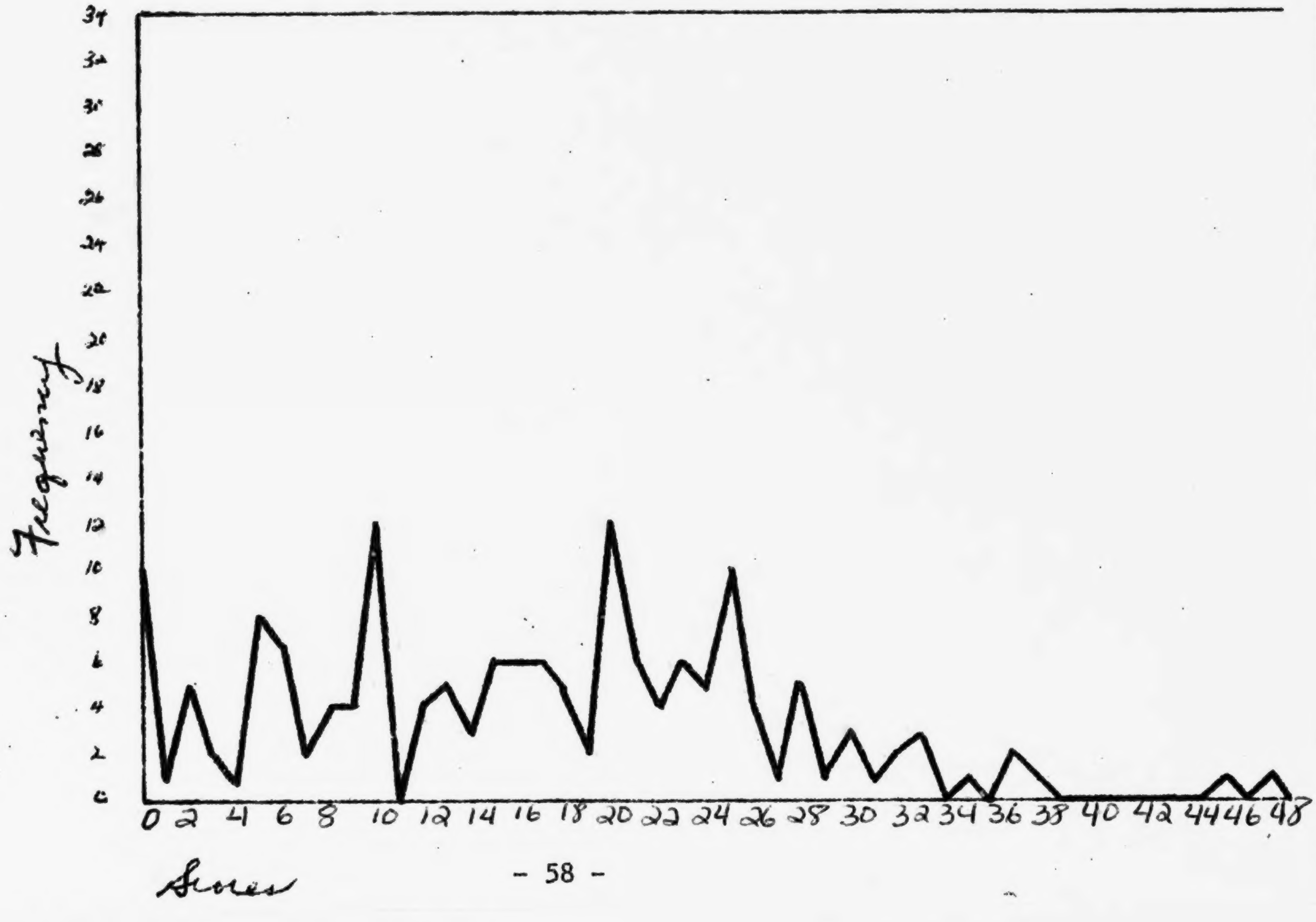

CHART "G" - Flexibility (Mochudi Story)
Taba Project Control Group Pre-Test N=155

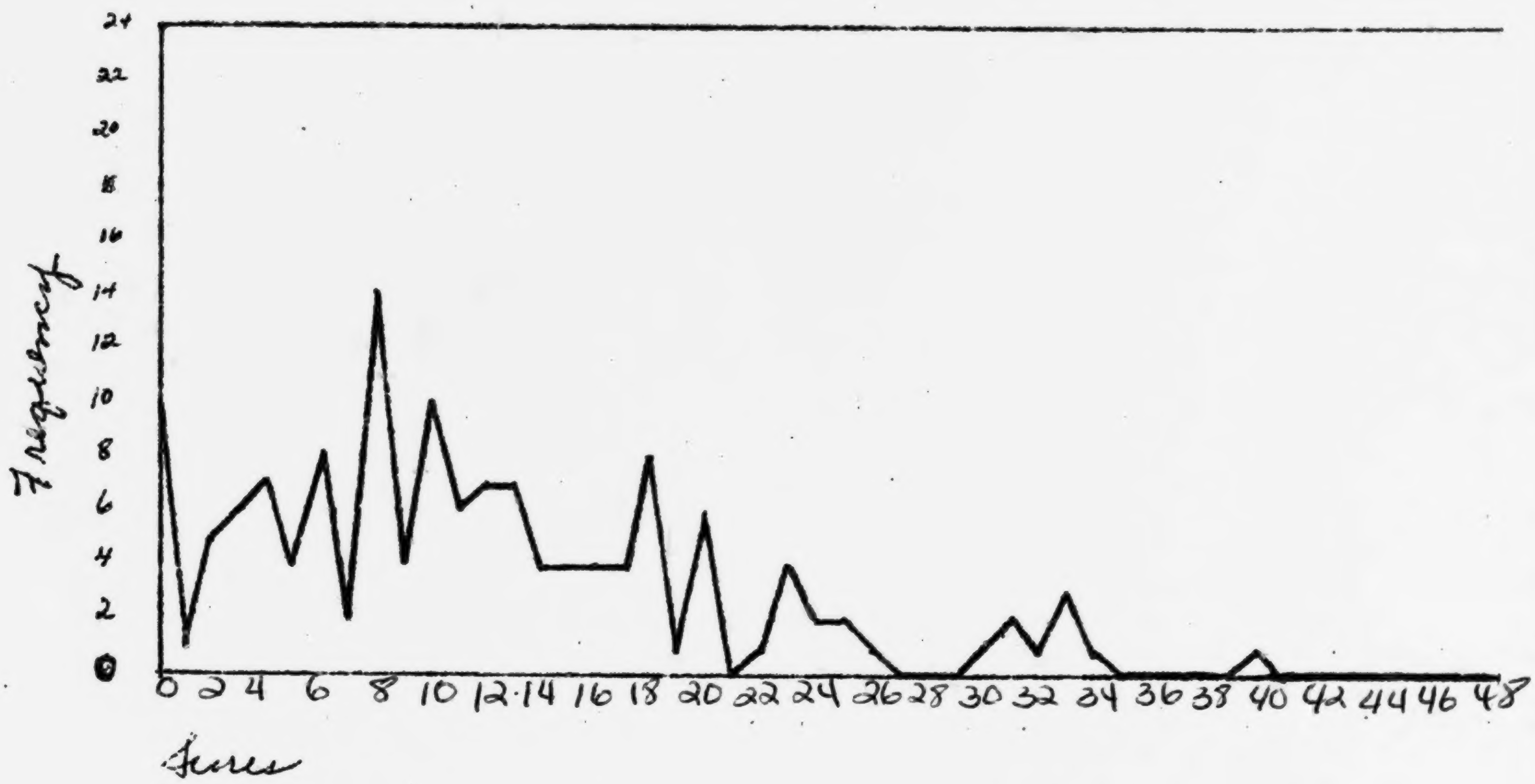

CHART "H" - Flexibility (African Story)
Taba Project Control Group Post-Test N=155

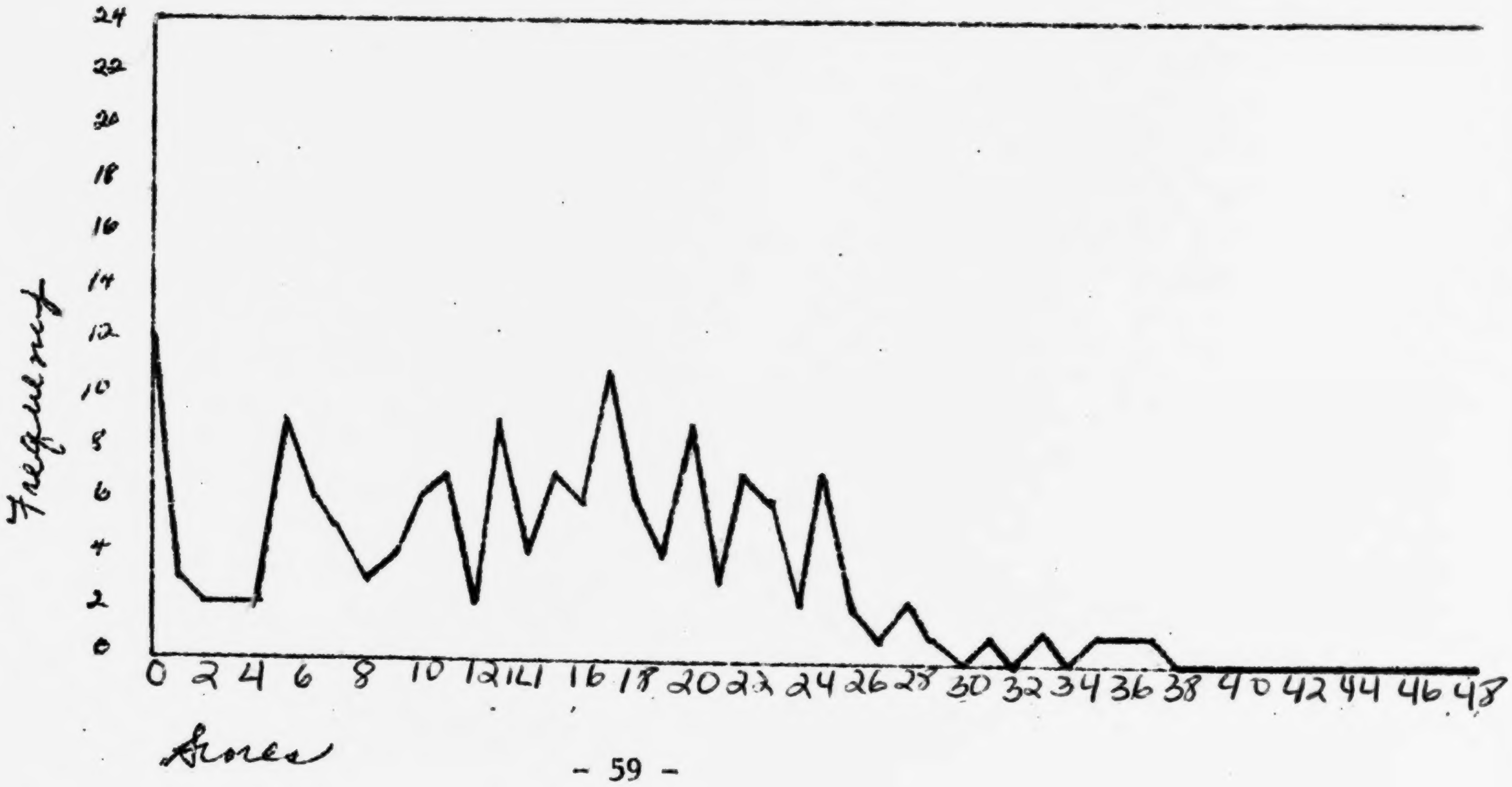

CHART "I" - Generalizing (Tolox Story)
Taba Project Experimental Group Pre-Test N=144

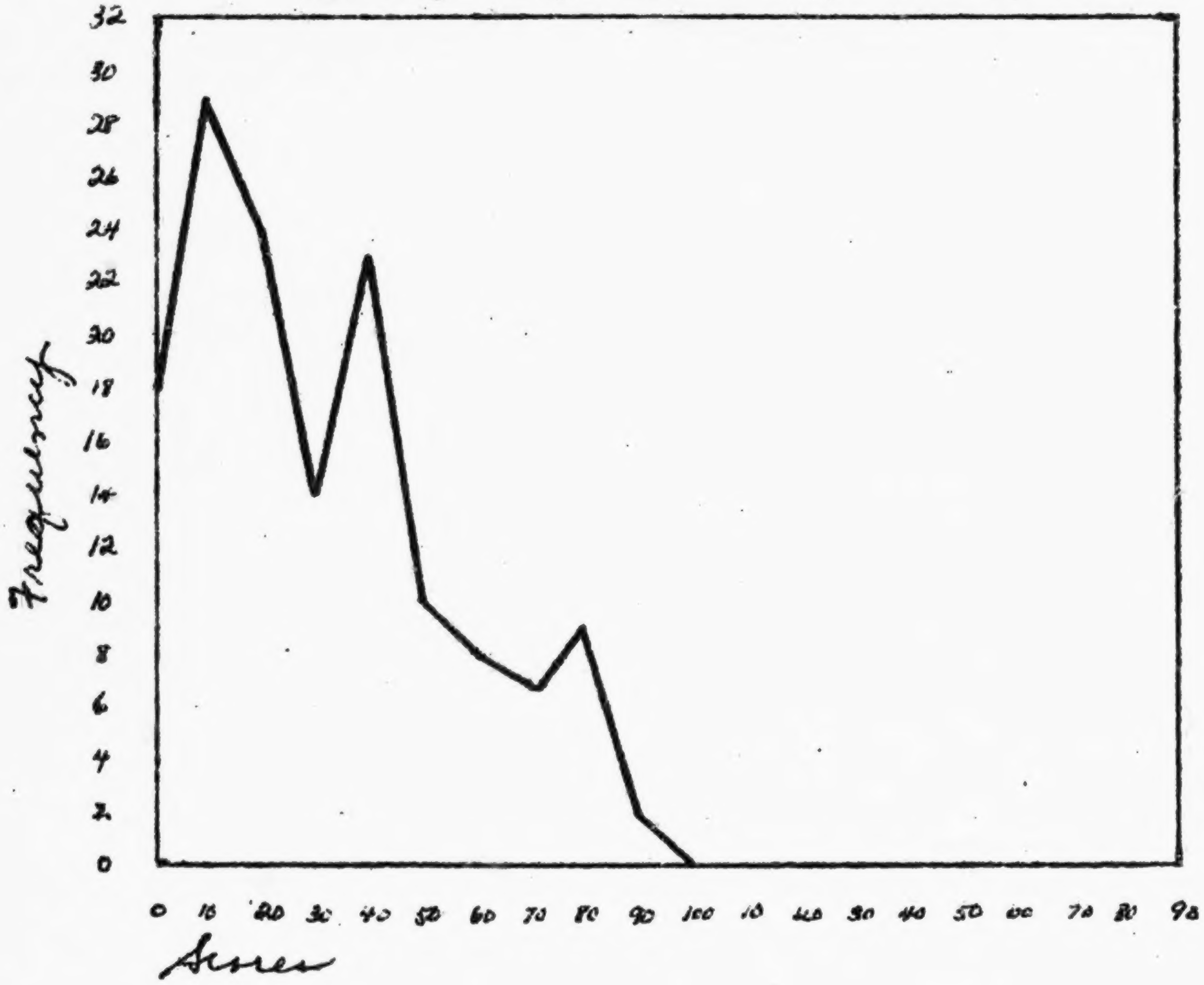

CHART "J" - Generalizing (Pedro Story)
Taba Project Experimental Group Post-Test N=144

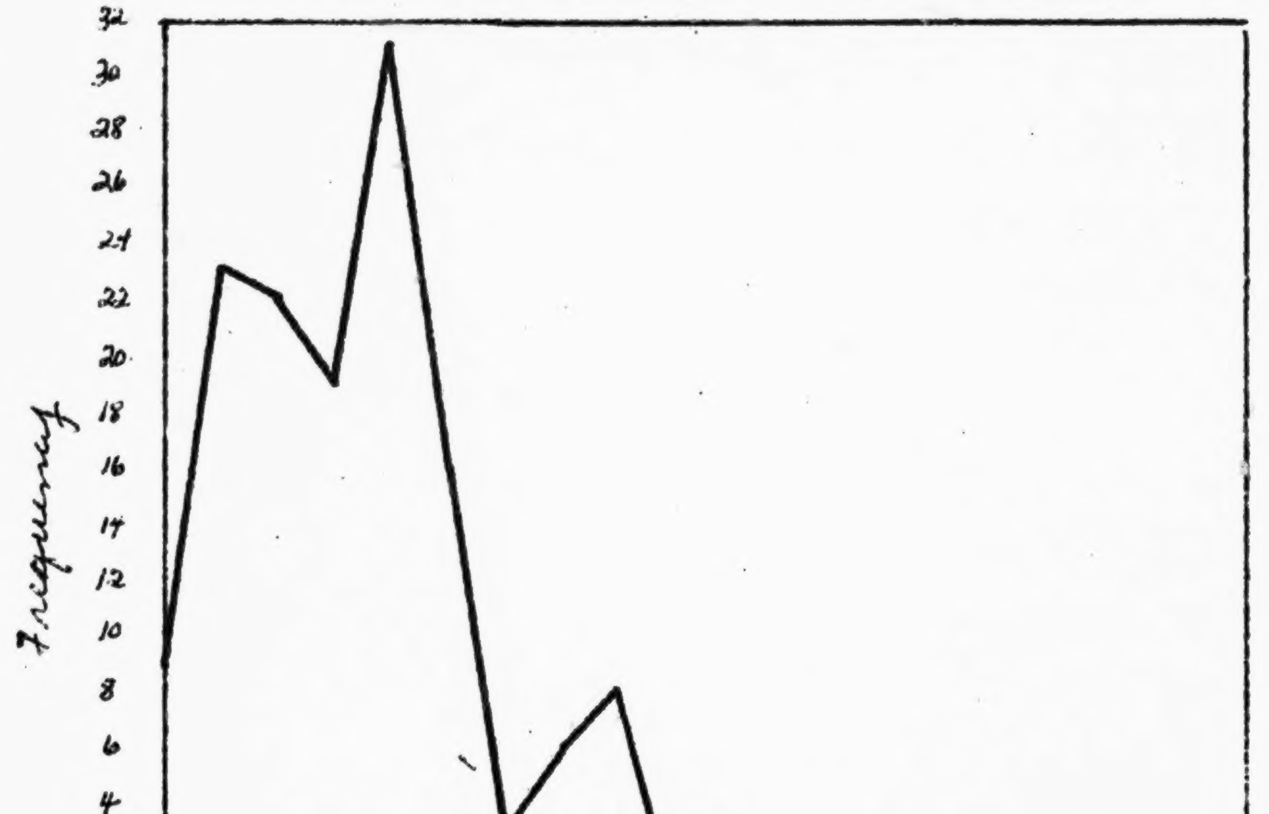

CHART "K" - Generalizing (Tolox Story)
Taba Project Control Group Pre-Test N=155

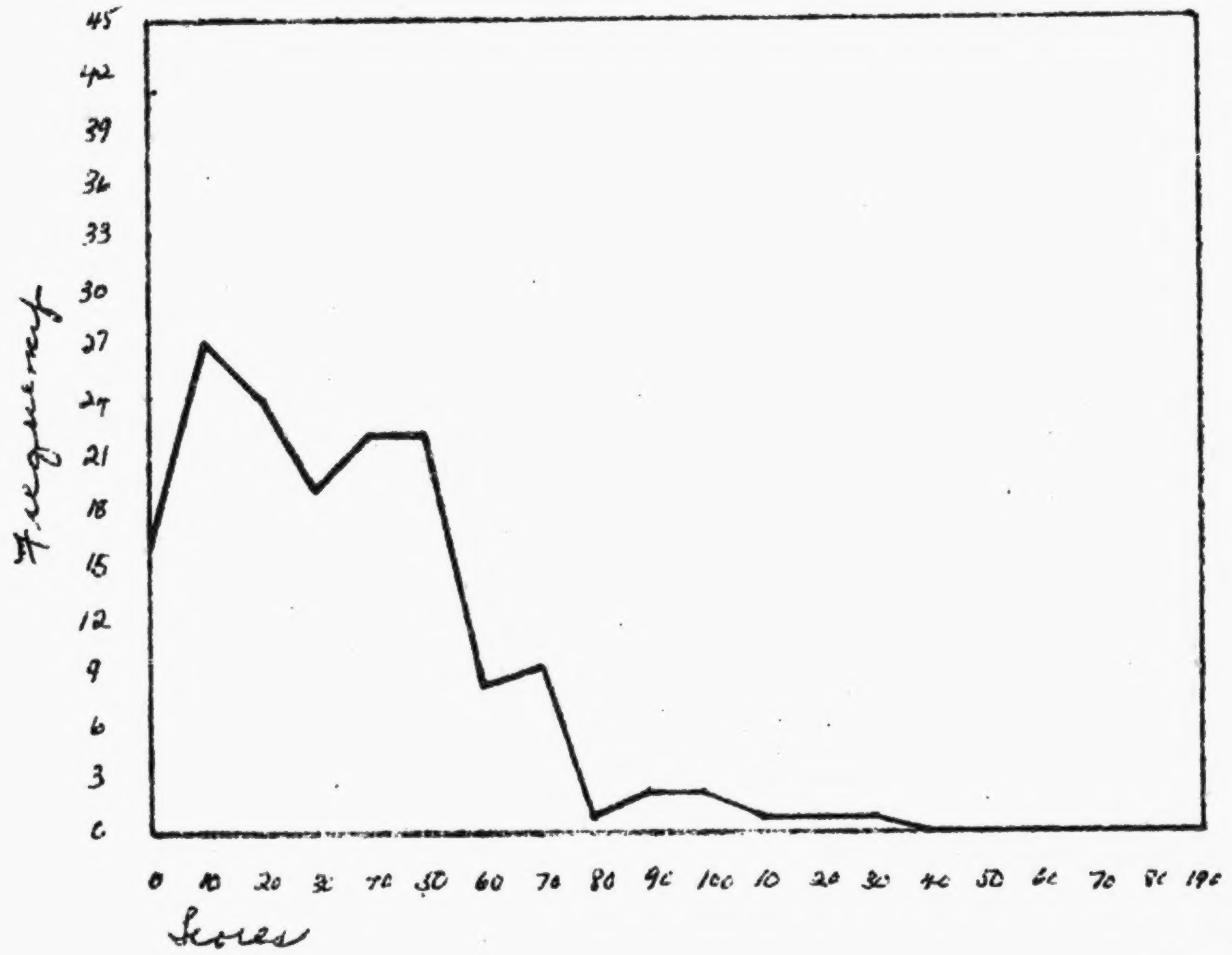

CHART "L" - Generalizing (Pedro Story)
Taba Project Control Group Post-Test N=155

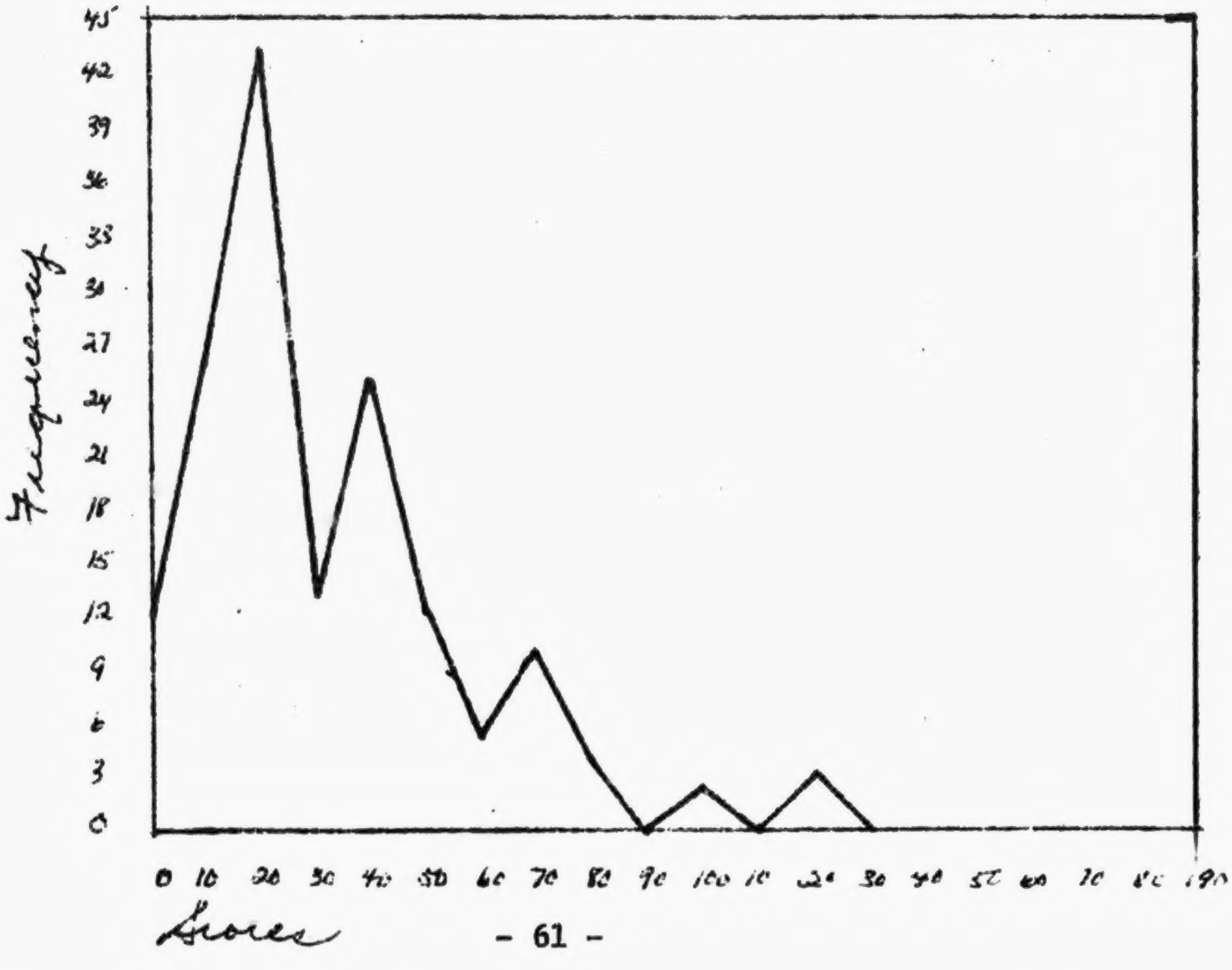

TABLE G

Eval.	Observor FM			Observor CDA			Observor FM			Obversor CDA		
Crit.	Pre	Post	M	Pre	Post	M	Pre	Post	M	Pre	Post	M
	Teacher 1						Teacher 2					
ST/TT	36%	40%	+4%	29%	33%	+4%	36%	33%	-3%	42%	36%	-6%
TS/TI	59%	77%	+18%	56%	59%	+3%	85%	93%	+8%	100%	90%	-10%
TA/TR	86%	83%	-3%	67%	93%	+26%	100%	100%	0%	100%	85%	-15%
3+4/1+2	36%	67%	+31%	49%	84%	+35%	42%	45%	+3%	58%	50%	-8%
	Teacher 3						Teacher 4					
ST/TT	37%	37%	0%	27%	34%	+7%	33%	41%	+8%	36%	30%	-6%
TS/TI	42%	55%	+13%	30%	52%	+22%	64%	86%	+22%	60%	75%	+15%
TA/TR	89%	100%	+11%	88%	90%	+2%	100%	73%	-27%	100%	88%	-12%
3+4/1+2	32%	43%	11%	43%	38%	-5%	19%	51%	+32%	26%	77%	+51%
	Teacher 5						Teacher 6					
ST/TT	52%	44%	-8%	51%	56%	+5%	50%	42%	-8%	43%	42%	-1%
TS/TI	87%	69%	-18%	87%	70%	-17%	83%	81%	-2%	86%	69%	-17%
TA/TR	86%	100%	+14%	20%	100%	+80%	100%	100%	0%	100%	100%	0%
3+4/1+2	29%	31%	+2%	42%	19%	-23%	60%	63%	+3%	51%	91%	+40%
	Teacher 7						Teacher 8					
ST/TT	68%	47%	-21%	57%	45%	-12%	62%	51%	-11%	59%	51%	-8%
TS/TI	60%	89%	+29%	86%	79%	-7%	100%	83%	-17%	100%	91%	-9%
TA/TR	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	67%	-33%
3+4/1+2	32%	29%	-3%	39%	28%	-11%	52%	34%	-18%	59%	40%	-19%
	Teacher 9						Teacher 10					
ST/TT	39%	44%	+5%	42%	39%	-3%	42%	46%	+4%	37%	42%	+5%
TS/TI	73%	73%	0%	87%	75%	-12%	43%	76%	+33%	47%	56%	+9%
TA/TR	100%	90%	-10%	95%	89%	-6%	92%	100%	+8%	90%	100%	+10%
3+4/1+2	41%	80%	+39%	50%	93%	+42%	46%	3%	-43%	59%	2%	-57%
	Teacher 11						Teacher 12					
ST/TT	57%	65%	+8%	46%	60%	+14%	48%	47%	-1%	47%	42%	-4%
TS/TI	85%	82%	-3%	100%	91%	-9%	80%	55%	-25%	74%	21%	-53%
TA/TR	100%	100%	0%	100%	100%	0%	100%	100%	0%	90%	100%	+10%
3+4/1+2	50%	39%	-11%	50%	63%	13%	25%	53%	+28%	32%	71%	+39%

TABLE H

STATISTICAL ANALYSIS OF

TABA VERBAL BEHAVIOR MATRIX *

	Chi^2	Sig	P (Rho)
Fred Miller [pre-to-post]	19.038	.01	.953
Carmen DeAngelis [pre-to-post]	23.805	.01	.905
Total [pre-to-post]	21.316	.10	.810
Pre [Fred to Carmen]	21.92	.01	.953
Post [Fred to Carmen]	25.67	.001	.976

* 16 qualities
12 teachers
2 observors
pre-to-post

TABLE I

RAW SCORE TOTALS FROM TABA MATRIX*

	Pre	Post	Margin
+ST	524	555	1079
+TS	263	288	551
-TA	296	213	509
+Sub 3&4	490	508	998
+TT	688	652	1340
-TI	128	151	279
-TR	20	26	46
+Sub 1&2	703	637	1340
Margin	3112	3030	6142

* Each score represents both observors on all twelve teachers.

Recommendations

Many recommendations have already been made in the text of this report. In addition, other recommendations have been forwarded to appropriate sources. They are:

1. The in-service materials need revision, especially the demonstration films and the format of both the discussion possibilities guides and the teacher self-evaluation forms. These suggestions have been sent to the Institute for Staff Development, where the Coordinator was invited to spend some time with the Institute staff and three other Taba leaders in making the needed changes.
2. The in-service sequence of activities needs improvement, e.g., the manner of providing reinforcement after tryout experiences. ISD has received this recommendation and has chosen Mr. Miller as one of its trainers of Taba Trainers.
3. In addition to group "formal" in-service, much more time needs to be spent with individuals and small groups in their own teaching environment. This suggestion was incorporated in the proposal for local funding of "Strategies for Social Studies" and has been accepted.
4. In terms of evaluation, the sum total of the remarks from that section indicate to this Coordinator the extreme importance of well-conceived evaluation design prior to the onset of any in-service program.
5. The U.S.O.E. must continue to support innovative programs and place great stress upon quality in-service education. It is sad that local districts in most areas still place in-service so low in the order of priority when constructing local budgets.

Acknowledgements

All of us at the Center owe Gloria Kinney, our Director, a most gracious vote of thanks. She has not only followed it through from conception to final report, she has indeed personified all that our Center has tried to be -- innovative, warm, energetic and deeply dedicated to children and education. For me, she has been teacher in the finest sense of the word -- my example and motivator.

To Catherine Ekkebus, my secretary, I owe the smooth operation of my program. Her patience, diligence, and extra effort has made many last minute projects turn out perfect.

Carmen R. DeAngelis, a principal in District #23, has been a partner in my evaluation efforts. I thank him deeply for the untold hours he assisted in listening to tapes and modifying instruments.

Both Carmen and I wish to thank Dr. Raphael Lewy, my Evaluator, for sound advice and continued support.

Also, to Mr.Edward Grodsky, Superintendent of District #23, I owe thanks for his continued support both within his district and in the consortium.

Last, but not least, to my wife Fran, who gave up her vacation so that this report could be written, might I say again this year, "Maybe next year?"

FRED MILLER

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11. Taba, ibid. pp. 225.

12. Taba, ibid. pp. 226

13. Taba, Hilda "Techniques of In-Service Training", speech presented to: Conference of State Program Development Supervisors, U.S. Office of Education, June, 1965.

14. Taba, op sit. Teaching Strategies and Cognitive Functioning in Elementary School Children. pp. 19

15. Taba, op sit. Teacher's Handbook for Elementary Social Studies. pp. 6-7.

16. This Coordinator has coined this label, as such, after Dr. Frank

Hawkenshire, Stanford University, who has suggested these methods for group leaders and participants to receive feedback.

17. Members of the Outside Evaluation Team were: Robert Buser, Southern Illinois University; Margaret Carroll, Northern Illinois University; Maurice Eash, Hunter College of The City University of New York; Jerry Kuhn, University of Iowa; David Rice, Indiana State University; Mildred Vance, Arkansas State University.

18. Another explanation for the rejection of the rejection-acceptance hypothesis is the smallness of the sample. Looking at Table G one will note that 15 of the post scores were already at 100%, so that M in some cases was 0% if both pre and post were at 100%. Also, it will be noted that only one rejection for post and none for pre would represent a loss of 15% in most cases.

ABSTRACT

Strategies for Social Studies has been primarily training teachers in Hilda Taba's teaching strategies for developing children's thinking. There is much documentation to recommend an emphasis upon thinking as a curricular objective and Taba strategies as the means to that end.

The Coordinator of this program wanted to see, as an end product, teachers who could plan, implement, and evaluate teaching activities for each of Taba's cognitive tasks. He also wanted these teachers to utilize these methods in appropriate places in the on-going sequence of learning experiences.

In order to accomplish this objective, the Coordinator utilized an inductive in-service program that balanced theory and practice and was designed to approximate the kind of learning sequences and approach that teachers were to use in their classrooms.

The feedback received during the course of the year stimulated modifications and also convinced Mr. Miller that his in-service efforts were being well received. Summative evaluation led to acceptance of new hypothesis in regard to Taba in-service and pointed the way toward studies yet needed. The program was effective in changing teacher classroom verbal behavior.

There is much to recommend this in-service program both in regard to its own objectives and as a generic model. The Coordinator is pleased that an increasing number of school districts are becoming involved in the Taba In-Service Education Program.

APPENDIX A

Workshop Syllabi

Contents

Agendum for workshop - Teacher Group

Agendum for workshop - Leadership Group

APPENDIX A - WORKSHOP SYLLABI

IN-SERVICE CALENDAR - SCHOOL DISTRICT #23

Aug. 29, 1968 - Group Planning (1/2 day)

Sept. 9* - Awareness Experience - Concept Formation

30 - Discussion Possibilities Guides in Teams

Oct. 14 - Plan First Classroom Tryout - Concept Formation

28 - Primary & Intermediate Demonstration Film
Film on Theory of Concept Formation

Nov. 1-A.M. - Sensitizing Experience (Interpretation of Data)
Pairs: Fill in Discussion Guide
Teams: Compare Results

P.M. - Formal Introduction to Task II
Group Builds Discussion Guide

13 - Pairs: Build Grade Level Discussion Guides
Teams: Compare & Discuss Results

25 - Self-assessment & Student Assessment
Group Examines Discussion Guide
Group Views Demonstration Film & Analyzes

Dec. 23 - Discuss First Taping
Analyze Tapescripts

Jan. 27, 1969 - Group Analyzes Tapescript on Thought Levels
Group Analyzes Teacher Roles in Classroom Discussion
Pairs Begin Building Second Grade Level Discussion
Possibilities Guide

Feb. 24 - Group Discusses Second Classroom Tryout
Group Discusses Article on Use of Retrieval Charts
& Views Demonstration Film on Planning
& Building a Retrieval Chart

Mar. 13 - Complete Work of February 24

24 - Group Discusses Readings F-5 and F-6
Group Reads Tolox Story & Each Individual Develops
a Sentence Summary of the Story
Pairs Rate a List of Children's Generalizations
Developed Concerning the Story
Group Views and Discusses Film on Generalizations
& the Generalizing Process

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* Unless otherwise indicated, sessions were held after school, 90 min. maximum.

In-Service Calendar, Cont'd

Apr. 28 - Group Reviews Functions of Interpretation of Data Task
Leader Summarizes Cognitive Task II.
Individuals Begin Developing Application to Other Subjects Areas

May 26 - Discussion of Final Tryout
Sensitizing Experience & Demonstration Films for Task III
Application of Principles

PILOT PERSONNEL

Participants	Grade	School	No. of Pupils
Gail Kapp	3	John Muir	33
* Helen Armstrong	5	John Muir	32
Ruth Erlanger	4	John Muir	32
Elsie Griesch	3	Sullivan	27
* Mary Hyrczyk	4	Sullivan	35
Barbara Howe	5	Sullivan	34
Kay Iverson	3	Sullivan	27
* Joanne Kamen	3	John Muir	36
Nona Marxen	5	Sullivan	15
Violet Rooney	5	Sullivan	33
Bernice Spieker	5	John Muir	33
Virginia Wiener	4	John Muir	30
* Carmen DeAngelis-Dist.#23 Coordinator		John Muir	367
* Fred Miller- Consultant		T & D Center	

* Planning Committee -- In addition to local in-service and local planning sessions, these teachers attended 13 full day sessions for grade group leaders within the consortium.

WORKSHOP AGENDUM

TABA LEADERSHIP WORKSHOP

October 10, 1968

9:00 - Introductions
Introduce Taba
Multiplier effect explained
Workshop objectives
Training sequence described

9:40 - T & D attitude survey

10:00 - Overview of today's program
Pairs & teams established

10:15 - Coffee break (buy manuals)

10:35 - Sensitizing Experience (Concept formation)

11:05 - Analysis of sensitizing experience by pairs

11:25 - Group discussion of sensitizing experience

11:45 - Lunch

1:00 - Introduction to the basic elements of concept formation

1:30 - Teams build discussion possibilities guide

2:30 - Teams analyze their results against model

3:00 - Group discussion of this experience

October 24, 1968

9:00 - 9:45 Pairs build grade-level possibilities
Guide and check against a model

9:45 - 10:00 Group discussion

10:00 - 10:45 Primary and intermediate level teams view films
and analyze tapescripts

10:45 - 11:00 Coffee Break

11:00 - 12:00 Volunteer pairs tryout of discussion possibilities
on group
Process observers use evaluation form

Oct. 24, 1968 Cont'd

12:00 - 1:00	Lunch
1:00 - 1:15	Discuss classroom tryouts, taping, and use of evaluation forms
1:15 - 1:45	Problem clinic on concept formation
1:45 - 2:30	Pairs build grade level discussion possibilities guide for tryout and check against model
2:30 - 2:45	Coffee Break
2:45 - 3:45	Group develops criteria for evaluating concepts
3:45 - 4:00	Feedback sheet -- individual problems -- applications completed, etc.

November 14, 1968

9:00 - 9:30	Discuss plans for future sessions
9:30 - 10:00	Discuss first taping
10:00 - 10:45	Film: Theory on Concept Information and analysis worksheet
10:45 - 11:00	Coffee Break
11:00 - 11:45	Group participates in sensitizing experience
11:45 - 12:00	Pairs analyze sensitizing experience
12:00 - 1:00	Lunch
1:00 - 1:15	Group discusses sensitizing experience and leader introduces the basic elements in interpretation of data task
1:15 - 2:00	Group reads intake for group's practice and leader begins to develop discussion possibilities guide with entire group
2:00 - 3:10	Teams complete the development of the discussion possibilities guide
3:10 - 3:45	Pairs begin discussion possibilities guides and homework assigned
3:45 - 4:00	Individual problems

December 19, 1968

9:00 - 9:15	Review transparencies on interpretation of data task and attendance
9:15 - 9:45	Pairs build grade level discussion possibilities guides
9:45 - 10:15	Leader analyzes tapescripts of classroom discussion problems
10:15 - 10:30	Coffee
10:30 - 11:00	Primary and intermediate groups listen to analysis of tapescripts of interpretation of data discussion
11:00 - 11:45	Film tapescripts, demonstration films and discussion
11:45 - 12:30	Lunch
12:30 - 1:30	Group analyzes tapescript on thought levels
1:30 - 1:50	Group analyzes teacher roles in classroom discussion after reading F-4
1:50 - 2:45	Group participates in sensitizing experience on use of retrieval chart
2:45 - 3:00	Pairs analyze sensitizing experience on retrieval chart
3:00 - 3:30	Homework and local in-service discussion and feedback sheets. Discussion of agenda for remaining meetings.

HOMEWORK

1. Tape classroom tryout and fill out B-4-5
2. Read F-4, F-5 and F-6 and fill in worksheets B-8-4 and B-8-5

January 16, 1969

9:00 - 9:15	Attendance and instructions to group observer
9:15 - 10:45	Sensitizing experience using three cognitive tasks with same content
10:45 - 11:00	Coffee Break
11:00 - 12:00	Interpretation of data gleaned from sensitizing experience (continued on 1/23, if necessary)
12:00 - 1:00	Lunch

Jan. 16, 1969 Cont'd

1:00 - 1:45	Problem clinic on interpretation of data tryout
1:45 - 2:15	Discussion of readings
2:15 - 2:45	Interpreting feedback from observers
2:45 - 3:00	Pairs analyze sensitizing experience on retrieval chart
3:00 - 3:30	Discussion of work for next session and guide for Task II discussion guides

January 23, 1969

9:00 - 9:45	Completion of Interpretation of data gleaned from sensitizing experience
9:45 - 10:45	Group analyzes tapescript on thought levels
10:45 - 11:00	Coffee break
11:00 - 11:20	Group analyzes teacher roles in classroom discussion
11:20 - 12:00	Pairs build second grade level discussion possibilities guides
12:00 - 1:00	Lunch
1:00 - 1:30	Group discusses first Task II classroom tryout
1:30 - 2:00	Group reads and discusses article on use of retrieval charts and views demonstration film on planning and building a retrieval chart
2:00 - 2:30	Discussion of readings F-5 & F-6
2:30 - 2:40	Group reads Tolox story (B-12-1) and each individual develops a sentence summary of the story
2:40 - 3:00	Pairs rate a list of children's generalizations developed concerning the story
3:00 - 3:30	Group develops criteria for evaluating generalizations
3:30 - 4:00	Optional: Special concerns

HOMEWORK - Tape classroom tryout and evaluate using B-4-5

January 30, 1969

9:00 - 9:45	Discussion of classroom tryouts
9:45 - 10:00	Coffee
10:00 - 11:15	Film: Generalizing and the Generalizing Process and worksheet
11:00 - 12:00	Group reviews functions of interpretation of data task and develops & applies criteria for selection of material
12:00 - 1:00	Lunch
1:00 - 2:30	Teams develop applications of this cognitive task to a variety of subject matter areas
2:30 - 4:00	Director of the Institute for Staff Development speaks with group on problems and models for disseminating curricular innovations

February 6, 1969

9:00 - 9:30	ISD Feedback sheet
9:30 - 10:30	Building team discussion possibilities guides
10:30 - 10:45	Coffee
10:45 - 11:30	Introduction of Taba Matrix
11:30 - 12:00	Team tryouts of Interpretation of Data
12:00 - 1:00	Lunch
1:00 - 2:30	Complete tryouts
2:30 - 3:00	Evaluation of tryout
3:00 - 3:30	Work on chart of Task II - Feedback sheet

February 13, 1969

9:00 - 9:45	Build team cause & effect discussion possibilities guide
9:45 - 10:15	Introduce new Taba Matrix
10:15 - 10:30	Coffee
10:30 - 12:00	Team Tryout

Feb.13, 1969 Cont'd

12:00 -	1:00	Lunch
1:00 -	1:30	Evaluation of Tryouts
1:30 -	2:00	Complete chart on interpretation of data
2:00 -	2:30	Summary of interpretation of data
2:30 -	4:00	Demonstration films - Intermediate & Primary levels Feedback sheets

February 20, 1969

Dr. Merrill Harmin

A.M. - Building Leadership Skills

P.M. - Value Clarification Teaching Strategies

February 27, 1969

9:00	-	9:10	Group rearranges scrambled question sequence
9:10	-	9:50	Group participates in awareness experience for interpretation of attitudes and feelings
9:50	-	10:00	Group recalls questioning strategy of sensitizing experience
10:00	-	10:15	Coffee Break
10:15	-	10:40	Pairs make inferences about questioning strategy of awareness experience
10:40	-	11:00	Introduction of basic elements of this task
11:00	-	11:15	Group reads intake for team practice
11:15	-	12:00	Teams develop discussion possibilities guides
12:00	-	1:00	Lunch (and complete above)
1:00	-	1:15	Group discusses guides built by teams
1:15	-	1:50	Pairs build grade level discussion possibilities guides
1:50	-	2:00	Break

Feb. 27,1969 Cont'd

2:00 - 2:30	Two groups listen to analysis of two tapescripts
2:30 - 3:00	Group views and discusses demonstration films
3:00 - 3:30	Role-playing for social values

March 13, 1969

9:00 - 9:30	Group participates in sensitizing experience for Task III - Application of Generalizations
9:30 - 9:45	Pairs analyze experience
9:45 - 10:00	Group discusses experience and leader introduces basic theory of Task III
10:00 - 10:15	Coffee
10:15 - 11:00	Teams build discussion possibilities guides and check against model
11:00 - 11:10	Group discusses teams' guides
11:10 - 11:40	Leader introduces the similar situation , the changed variable, and teaching types of Task III
11:40 - 12:45	Lunch
12:45 - 1:15	Primary & Intermediate groups analyze tapescripts
1:15 - 1:45	Primary & Intermediate groups view demonstration films
1:45 - 2:30	Leader summarizes Task III
2:30 - 3:30	Group analyzes the three thinking tasks from combined charts

OPTIONS AVAILABLE FOR

April 17 Meeting at Scanda House

1. Dr. Raphael Lewy, head of the T & D Evaluation Team, will share some notions and discuss individual problems related to program evaluation.

2. Ron Hager will work with a small group on leadership skills.

3. Don Heitzman will present "trends in the social studies" and share some of his notions through discussion.

4. Fred Miller will share and discuss ideas on "further Taba training for the consortium".

April 17, 1969 Cont'd

5. Fred Miller will present some notions on "adapting the Taba strategies for various purposes".
6. Fred Miller will work with a small group on integrating the teaching strategies into units of instruction.
7. We just received an un-edited, one-of-a-kind, 60 minute film made by Dr. Taba.

Also, all of the participants will be asked to complete assessment forms on Strategies for Social Studies' effectiveness.

April 24, 1969

Visit Park Forest, Ill. Contra Costa Demonstration Center and discuss Taba curriculum with their staff.

APPENDIX B

Sample Awareness Conferences

APPENDIX B

Sample of Awareness Conferences

I. When soliciting participants for training

Time (in minutes)	Topic
10	What research tells about thinking and teaching
5	Purposes for today's conference and identification of the cognitive tasks
40	Concept formation task using participants as students (if time, another cognitive task would be demonstrated, using children)
20	Process observors report out and group analyzes the preceeding experience
15	Introduction to rationale and theory for the three cognitive tasks and interpretation of attitudes and feelings
20	Group interprets retrieval chart of three tasks (leader is actually using task two for the discussion)
20	Introduce training sequence of the Taba in-service education program - activities and rationale
30	Questions

II. When introducing the Taba Curriculum Criteria

Time	Topic
20	Multiple objectives (emphasizing thinking)
15	Selection and organization of content
15	Selection and organization of learning experiences
20	Systematizing of teaching strategies
15	Evaluation of program
30	Questions

Appendix B
Cont'd

III. When introducing Taba Teaching Strategies (conducting 3 tasks using teachers as students)

Time	Topic
25	Concept Formation (First focusing question "What are some of the inventions that have been made since the founding of our nation?)
40	Interpretation of Data (Question sequence aimed at generalizing the following from the committee-constructed retrieval chart "Many facets of American life have been changed by invention."
25	Application of generalizing (Applying the above generalization by asking first "Suppose a machine was developed that would remove dirt and dust from people and things by means of high frequency waves. What would happen?")
20	Using retrieval chart of three cognitive tasks, the leader using a question sequence to encourage the group to generalize on the purposes of these strategies.
15	Introduction to theory.
30	Questions.

APPENDIX C

Evaluation

Contents

"Strategies for Social Studies" Feedback Inventory

Summary form for Feedback Inventory

Contra Costa Opinionnaire

Two Observational Instruments tried

Taba Verbal Behavior Classification Matrix

Sample Page from student "Thinking Test"

CODE ____________

"STRATEGIES FOR SOCIAL STUDIES"

FEEDBACK INVENTORY

This is a survey of your opinions concerning elements of this meeting. Each element is presented as two alternative statements.

Circle the letter which indicates which statement you agree with and to what extent you agree with it.

	A	Strongly Agree With	Slightly Agree With	No Choice	Slightly Agree With	Strongly Agree With	B
		← A	← a	X	b →	B →	
1.	I UNDERSTOOD what was presented today. Ideas were presented clearly.	A	a	X	b	B	I WAS NOT ABLE TO UNDERSTAND today's material. Clarity in presentation was lacking.
2.	PRODUCTIVITY was high. We were digging hard and were earnestly at work on a specific task. We achieved something.	A	a	X	b	B	PRODUCTIVITY was low. We were proud, fat and happy just coasting along. Our meeting was irrelevant.
3.	INVOLVEMENT was lacking. I watched from the outside. I did not feel part of what was happening.	A	a	X	b	B	INVOLVEMENT was present. I was participating. I felt part of what was taking place.
4.	THE CONTENT was inappropriate to my own situation. It had no relevance to what I do daily.	A	a	X	b	B	THE CONTENT was meaningful to my own situation. I could see how this could apply to what I do during the week.
5.	THE ACTIVITIES were paced and sequenced so that we smoothly progressed toward our goals. There were few jumps where we lost many, or repetive activities that bored us.	A	a	X	b	B	THE ACTIVITIES were poorly sequenced and paced. We were bored or lost. There was too much or too little of certain kinds of activities.

A	Strongly Agree With ← A	Slightly Agree With ← a	No Choice X	Slightly Agree With b →	Strongly Agree With B →	B
6. I WILL BE ANXIOUS TO USE some form of the strategies presented in my classroom	A	a	X	b	B	I WOULD NOT USE any of the activities in my own classroom.
7. I'D FEEL COMFORTABLE with these strategies in my classroom. I could easily incorporate then into my style.	A	a	X	b	B	I WOULD NOT FEEL COMFORTABLE with these strategies in my classroom. My style is too different.
8. THE LEADER was open, flexible and accepting	A	a	X	b	B	THE LEADER was inflexible, rigid and rejecting.

9. BRICKBATS

10. BOUQUETS

11. WHAT SUGGESTIONS could you make to improve the training program or its presentation?

ELK GROVE TRAINING &
DEVELOPMENT CENTER

"STRATEGIES FOR SOCIAL STUDIES"

FEEDBACK INVENTORY SUMMARIES

______________________ N= ________________ ______________________
Workshop Group Date

Input____

Special Circumstances______________________________________

	A	a	X	b	B
1)	___	___	___	___	___
2)	___	___	___	___	___
3)	___	___	___	___	___
4)	___	___	___	___	___
5)	___	___	___	___	___
6)	___	___	___	___	___
7)	___	___	___	___	___
8)	___	___	___	___	___

Modifications as a result of this feedback

9) BRICKBATS:

10) BOUQUETS:

11) SUGGESTIONS:

CONTRA COSTA OPINIONNAIRE

ASSUMPTIONS

1. Responses should relate to your personal oppinion and experience with the Contra Costa Curriculum.
2. This feedback relates to the curriculum rather than to the in-service program.
3. We would appreciate anonymity.
4. Comparisons should be made between Contra Costa and the more traditional social studies program.

Circle the letter which indicates which statement you agree with and to what extent you agree with it.

A	Strongly Agree With	Slightly Agree With	No Choice	Slightly Agree With	Strongly Agree With	B
Teacher impressions of pupil reaction:	← A	← a	X	b →	B →	
1. Pupil participation decreased as the program progressed.	A	a	X	b	B	Pupil participation increased as the program progressed.
2. Children showed less ability to discover and analyze relationships.	A	a	X	b	B	Children showed greater ability to discover and analyze relationships.
3. Enthusiasm was high among pupils.	A	a	X	b	B	Enthusiasm was low among pupils.
4. Grade level content was appropriate for this level.	A	a	X	b	B	Grade level content was not appropriate for this level.
5. Pupils are less able to work in small groups.	A	a	X	b	B	Pupils are more able to work in small groups
6. Pupils have acquired map, globe and research skills appropriate at this level						Pupils have not acquired map, globe, and research skills appropriate at this level.

A	Strongly Agree With ← A	Slightly Agree With ← a	No Choice X	Slightly Agree With b →	Strongly Agree With B →	B
7. Pupils are more able to express themselves	A	a	X	b	B	Pupils are less able to express themselves.
8. Pupils are more questioning.	A	a	X	b	B	Pupils are less questioning.
9. Pupils attention was less.	A	a	X	b	B	Pupils attention was greater.
Teacher reaction:						
10. My technique of classroom presentation has not been effected by this program.	A	a	X	b	B	My technique of classroom presentation has been effected by this program.
11. I feel my person effectiveness, in general, has been improved because of my participation in this program.	A	a	X	b	B	I do not feel my personal effectiveness has been improved because of this program.
12. I felt comfortable in working with this program.	A	a	X	b	B	I did not feel comfortable in working with this program.
13. Activities were paced and sequenced smoothly.	A	a	X	b	B	Activities were poorly sequenced.
14. There was a great variety of activities.	A	a	X	b	B	Variety of activities were rather limited.
15. All student ability levels were involved.	A	a	X	b	B	Only one level of student ability maintained involvement.

16. What things did you especially like about this program?

17. What would you change in the Contra Costa program?

18. Would you want to use this program again?

19. Would you recommend expansion of this program in our district?

TEACHER - STUDENT
CLASSROOM (SELF-ASSESSMENT)
BEHAVIOR CLASSIFICATION MATRIX

PROCESS \ SUBSTANCE	recognition - memory	productive & critical thinking	affect	class management
Gives information	GR	GT	GA	GM
Seeks response	SR	ST	SA	SM
Accepts behavior	AR	AT	AA	AM
Rejects behavior	RR	RT	RA	RM

Judge

TABA VERBAL BEHAVIORAL CLASSIFICATION MATRIX

Teacher

Cognitive Task 1 2 3

Taping Date

THOUGHT LEVELS

	1	2	3
TEACHER SEEKS: Focus or Lift			
Clarification			
Extend or Broaden			
INFORMS			
ACCEPTS OR SUPPORTS			
REJECTS			
STUDENTS SEEK			
INFORMS: Above			
At			
Below			
SUPPORTS			
REJECTS			

Observor ______

TABA VERBAL BEHAVIORAL CLASSIFICATION MATRIX

Teacher ______ Cognitive Task ______ Pre-Tape ______ 1 ______ 2 ______ 3 ______ Taping Date

SUBSTANCE

	1. Convergent Factual 2. Classroom Management 3. Emotion	Divergent Factual	Inferences	Generalizations	
TEACHER SEEKS					
INFORMS					PROCESS
ACCEPTS					
REJECTS					
STUDENTS SEEK					
INFORM: Above					PROCESS
At					
Below					
SUPPORT					
REJECT					

Words and Phrases to be Grouped

1. a big family
2. children
3. two lots of cousins
4. helpings of porridge
5. meat
6. all helped
7. work
8. school
9. their family was proud
10. schooling cost money
11. fees
12. books
13. school clothes
14. Molemni
15. Tsholo (the wife)
16. the money in the tin
17. Tsholo made up her mind
18. Ketse (the daughter)
19. useful in the house
20. whisking dust
21. pound the corn
22. wooden mortars
23. Molemni shouted in anger
24. the money for my seed corn
25. the money to mend my plough
26. Tsholo said sell a cow
27. her only good dress
28. collar

________	________	________
________	________	________
________	________	________
________	________	________
________	________	________

AFTER YOU HAVE FINISHED THE WORK ON THIS PAGE, CLOSE YOUR TEST BOOKLET AND SIT QUIETLY UNTIL YOU RECEIVE FURTHER INSTRUCTIONS.

APPENDIX D

Directory of Consultants Utilized

APPENDIX D

Consultants Utilized

Mr. Lyle Ehrenberg, Director of the Institute for Staff Development, Menlo Park, California, spoke to Taba Workshop on January 30, 1969. His topic was "Problems and models for disseminating curriculum objectives".

Mr. Ron Hager, Training Consultant with the Elk Grove Training and Development Center. He spent the afternoon of April 17, 1969 working with the Taba Workshop on leadership skills.

Dr. Merrill Harmin, Director for Project NEXTEP at the Edwardsville campus of Southern Illinois University and co-author of the book *Values and Teaching*, worked with the Taba Workshop on February 20, 1969. He spent the morning on communication skills and the afternoon on value clarification teaching strategies.

Mr. Don Heitzman, Social Studies Coordinator of School District #59, gave a 90 minute presentation on April 17, 1969 to the Taba Workshop on "Trends in Social Studies".

Dr. Raphael Lewy, Associate to the Director for Evaluation of the Elk Grove Training and Development Center, discussed program evaluation at the Taba Workshop on April 17, 1969. Dr. Lewy also assisted in the evaluation design for Strategies for Social Studies.

APPENDIX E

Sample Training Materials

Contents

Awareness Experience

Discussion Possibilities Model (Concept Formation)

Discussion Possibilities Model (Interpretation of Data)

Self-Evaluation Sheet

Demonstration Film Tapescript

Theory Film Analysis Model

Intake for Evaluation Discussion

Thinking Retrieval Chart

ANALYSIS MODEL

Sensitizing Experience

A. What was the first focusing question the leader asked?
What do you know about the people who came to the United States before 1850?

1. Why do you suppose so many could respond to that question?
It's broad enough for everyone to contribute at his level of knowledge.

2. What is the difference between the first question asked and this one: What do you know about the people of the United States?
This question is so broad that it has no meaningful focus.

3. What is the difference between the first question and this one: How many people came to the United States before 1850?
Only one person could respond; the response would be based either on direct recall or guessing.

4. Why do you think the leader stopped listing responses at the point he did?
There were plenty of diverse items that could be grouped in different ways.
Participants started to repeat themselves.
There shouldn't be so many items that the discussion becomes unmanageable.

5. Why did the leader ask, "Can someone give me something different?"
There were too many of the same kind of thing and this wouldn't allow grouping. All the items were in one concept area.

B. What was the second focusing question the leader asked?
Is there some way we could group these items?

1. What were you asked to do with the list of items you developed?
See some ways certain items could go together.
See particular relationships within a set of items.

2. a) What did the leader's first focusing question ask you to do?
In the first question you just recall, pull certain items

out to list.

b) What did the leader's second question ask you to do?
It asked us to look for ways we could relate the items so that we could group them together.

3. When you suggested a grouping, what question did the leader sometimes ask?
Why we wanted to group the items in that way.

4. What do you think would be the value of asking that type of question?
So others know a person's reason for putting items together. Also, it helps clarify the thinking of the person who is doing the grouping.

5. Why do you think the leader asked if there were other ways these items could be grouped?
There are many ways to look at objects in our environment - helps to develop flexibility in our thinking.

C. What was the third focusing question the leader asked?
What names can we give our groups?

1. What did the leader say in conclusion?
The name or label that you give to a group of items having something in common is called a concept. In the first part of today's session you have just performed a concept-forming task.

DISCUSSION POSSIBILITIES MODEL

Grade Three

Purpose: To focus the attention of the children on the variety of materials used in building houses locally.

Thought Level One: To list data.

* **Focusing Question:** *What are some of the materials you have seen being used around our community to build houses?*

Possible Responses	Possible Supporting Questions	Purposes
wood rock	*Could you tell us what you have in mind?*	To clarify.
glass bricks metal tar paints shingles gravel	*What do you mean by that?*	To clarify.
cement tar paper hammers saws screws screwdriver pliers pipe wrench	*Could someone give us something different?*	To break a chain.
nails sandpaper cement mixer linoleum tile hammer paintbrush Sheetrock		

Thought Level Two: To lift the discussion to grouping of data.

* Focusing Question: *Do you think that in all this long list of things there are some things that might go together?*

Possible Responses	Possible Supporting Questions	Purposes
screws screwdriver	*How do these go together?*	To lift; to elicit the reasons behind the grouping.
nails wood		
nails hammer		
cement cement mixer		
tar tarpaper		
	Is there anything we have listed that seems about the same as something else?	To try to move the children away from functional grouping.
Group One hammer saws screwdriver pliers pipe wrench screws	*Anyone else want to talk about screws?*	To clarify.
	Why would we put these items together?	To lift.
Group Two screws nails nuts bolts paintbrush		

Possible Responses		Possible Supporting Questions	Purposes
		Can anyone else think of some things that could go together?	To continue grouping.
Group Three	tile linoleum Sheetrock tarpaper sandpaper cement steel		
		Does anyone see other ways we could put some of our items together?	To encourage flexibility.

Thought Level Three: To lift the discussion to labeling of groups.

* Focusing Question: *What names can we give to our groups?*

Possible Responses		Possible Supporting Questions	Purposes
Group One	Tools		
Group Two	Things that we use with tools		
		Remember our question was: What materials have we seen being used in our community to build houses?	
Group Three	Factory-made materials		

DISCUSSION POSSIBILITIES MODEL

Grades Five and Six

Purpose: To compare two ways of life which developed in completely different environments.

Thought Level One: To list data.

* Focusing Question: What did you find out about the Arapesh? (Note: If this story was used in the concept formation task, recall data from that experience rather than doing a full Level One treatment.)

Possible Responses	Possible Supporting Questions	Purposes
They live in New Guinea. They live in the highlands. The land is very poor. The people share.	What do you mean by "share"?	To clarify.
The people share the land. They all work together. They share food. Arapesh marry very young. The "growing" of things is very special to them.	Can you tell me what you have in mind?	To clarify.
They say that the children are "growing" not "raised" like we do. Everybody helps to raise a child. They all love each other. They don't try to "outdo" each other.	Can you give an example of what you mean?	To clarify.
One person doesn't want to get more goods than the others. Men and women have certain jobs. They love art, but don't make their own. They borrow songs and dances from others.		

Possible Responses	Possible Supporting Questions	Purposes
They borrow jewelry and clothing styles.		
Children are loved by everyone.		
Men and women act the same.	Can you explain that a bit?	To clarify.
Men cry and women cry.		
Men and women both get angry.		

* Focusing Question: What, then, can you say about the Arapesh?

They share, they love, and they grow things.		

* Focusing Question: What do you know about the Kwakiutl?

They live in a rich land.	Can you tell me more about that?	To clarify.
It's easy to catch fish.		
There are lots of seals, otters, and other game.		
There is lots of wood for building.		
The people don't have to till the soil.		
They are whale hunters.		
They worked with wood, too.	How do you mean, "worked with wood"?	To clarify.
They split giant logs into planks.		
They built houses out of planks.		
A man boasted about the size of the logs in his house.		
They made boxes and carvings.		
They had slaves.		
They were war-like people.		
They traded their belongings and collected things for wealth and glory.	What do you mean by that?	To clarify.

Possible Responses	Possible Supporting Questions	Purposes
Certain families owned certain parts of the land and water.		
The Kwakiutl argued over nobility, rights and privileges and the belongings of a person.	*Tell me more about that.*	To extend.
Some people had more goods than they needed, like thousands of blankets, and carved chests, and canoes.		
They built long houses, too, and had their family designs on spoons, dishes and things like that.		
The songs and stories were about power and boasting.		
The family had its own songs that only they could use.		
Power is very important.	*How was the power achieved?*	To extend.
Through the wealth and outdoing others		
The Kwakiutl set up a banking system of copper slabs.		
They had potlatches.	*What were they?*	To clarify.
They were contests where people tried to buy as much as possible. They were wars that were fought with property. The person with the most property won power and glory.		
Only a few men had wealth.		
Most people were commoners or slaves.		
Persons got power by becoming Shaman.		
They used spies and tricks to get their power.		
If their tricks were discovered, they sometimes died of shame.		
The people were always trying to bring shame to one another.		
They were suspicious.		
They were jealous and they were always worried.		

* Focusing Question: *What, then, can you say about the Kwakiutl?*

Possible Responses	Possible Supporting Questions	Purposes
They were power-hungry. Some were wealthy. They were unhappy and selfish.		

Thought Level Two: To lift the discussion to identifying and explaining relationships among data.

* Focusing Question: *How do you think these two groups of people are similar?*

Possible Responses	Possible Supporting Questions	Purposes
They both provided for food, shelter and clothing.	*Why do you think this would be so?*	To lift; to elicit the reasons behind the response.
They both worked in groups. They both enjoyed art.		

* Focusing Question: *What differences do you see between the two groups?*

The Arapesh live in a poor land and the Kwakiutl live in a rich land. The Arapesh share and the Kwakiutl are selfish and jealous.	*Could you tell us more about this?*	To extend.
Arapesh share in the growing of children and crops. The Kwakiutl try to outdo everyone else by getting lots of wealth and power.	*Why do you think these two groups have different feelings about their personal belongings?*	To lift; to elicit the reasons behind the response.

Possible Responses	Possible Supporting Questions	Purposes
The Arapesh need everyone to work together to live off their poor land. The Kwakiutl live in a rich land and there is plenty of wealth for everyone. The Arapesh don't have many leaders. The Kwakiutl all try to be leaders by getting lots of wealth and power. The Arapesh don't have slaves, but the Kwakiutl do.	*Why do you think the two groups have different class structures?*	To lift; to elicit the reasons behind the response.
If the Arapesh had some slaves, there still wouldn't be enough food to go around. Everyone has to work. But the Kwakiutl have slaves to do the work for the rich, powerful men because there's plenty of food.		

Thought Level Three: To lift the discussion to making generalizations.

* Focusing Question: *How could you say in one sentence what we've said today?*

Possible Responses	Possible Supporting Questions	Purposes
Two groups of people living in two different areas having different resources will probably develop different ways of life.		

EVALUATION SHEET FOR INTERPRETATION OF DATA TRYOUT

State the purpose of your discussion.________________________

____

THOUGHT LEVEL ONE:______________________________

* Focusing Question Used:__________________________

____

1. How many children responded to your first question?__________
2. Did a cross-section of your children--both abstract and concrete thinkers--respond to your first question?__________
   a. If so, what did you do to get a cross-section?__________

   ____

   ____

   b. If not, what could you do next time to get responses from a cross-section of your students?__________________

   ____

   ____
3. What supporting questions did you use to obtain more data?______

   ____

   ____
4. Did you need to refocus? If so, how?____________________

   ____

   ____
5. How many items of specific data did you list before asking the second focusing question?__________
6. At what point did you decide to lift the discussion to thought level two?______________________________

   ____

THOUGHT LEVEL TWO:____

* Focusing Questions Used:_________________________________

____

____

1. How did you handle the relationship between thought level one and thought level two?
    a. Did you get out all the "whats" before asking the "whys?"

       ____

    b. Did you get out several "whats" and then pick up a promising one for "why", take a few more "whats", ask "why", and so on?

       ____

    c. Did you alternate on a "what-why" basis?________________
    d. What was the reason for your decision to handle the discussion as you did?______________________________________

       ____

2. What was the first dimension you chose to focus on for development?

   ____

3. Why did you pick up for exploration the particular dimensions you did?____

   ____

   ____

4. How did you handle the situation when a child wandered off focus?

   ____

   ____

5. What supporting questions did you ask?________________________

   ____

   ____

6. How many children contributed inferences related to the topic?

   ____

7. What questions could you have asked to get more children to contribute?____

   ____

8. Why did you decide to lift the discussion to the third thought level when you did?_____________________________________

   ____

THOUGHT LEVEL THREE:

* Focusing Question Used:

1. What questions did you ask to get the students to make broader or more concise statements?
2. How many children contributed generalizations?
3. On a separate piece of paper, list your students' generalizations. They will be used in the training sequence.

TOTAL DISCUSSION

1. List any places where you think you should have asked a different question.

   List questions which you think would have been more suitable and state your reasons.
2. In what ways did the actual discussion differ from the Discussion Possibilities Model that you worked out?

   How do you account for this?
3. How many times were you willing to tolerate silence in order to give the children time to think through their responses to your questions? Do you think these periods of silence were sufficient?

4. Were there places in your discussion where you and the children operated on a "teacher-pupil-pupil" basis rather than according to the "teacher-pupil, teacher-pupil" pattern?______________ Why do you think this was so?______________

5. How many times and at what points did you clarify?______________

   How successful were your attempts?______________

6. How many times and at what points did you restate?______________

   How successful were your attempts?______________

7. How many times and at what points did you urge the children to extend or defend?______________

   How successful were your attempts?______________

8. How high was the children's level of interest in this concept formation activity? Give reasons for your answer.______________

9. What do you think the children gained from this experience?
   a. intellectually (content, practice in thinking skills, concepts, ideas):______________
   b. socially (group interaction):______________

10. Do particular children in your class need this type of experience more than others?______________
    Do you feel that these children participated and gained from the experience?______________

11. What do you feel you gained from the experience?________________

____

____

____

12. List any problems that you would like to bring up at the clinic session on concept formation.______________________________

____

____

FILM TAPESCRIPT

Concept Formation

Primary Level

1 **Teacher** Boys and girls, I think we had a marvelous trip to the supermarket--remember last week?

Students Yes.

Teacher And I think Mr. Christenson was very kind to give us such a grand tour. Let's see if we remember some of the things that we saw. What did you see?

Student Well, I saw the cow's tongue.

Teacher Oh yes, we certainly enjoyed that. What did you see, Margie?

Margie Freezer.

Teacher Did you know that most of us had that in our letter. We all said we wanted to thank him for the freezer--showing us the freezer. Karen, what did you see?

Karen I saw where they cleaned the cows.

Teacher That's right. Now, what do we call this?

10 **Karen** A tub.

Teacher A tub. OK. Yes?

Student Cow's meat. Cow's body.

Teacher Yes. All right. Forrest.

Forrest A machine. It works so the freezer is cold.

Teacher That's right. The freezer is cold. Linda?

Linda The toy rabbit.

Teacher Oh yes. I remember your letter.

Student The what?

Teacher The toy rabbit. Remember our last stop over on the other side of Lee Brothers? OK. Let's review what we have so far and then we can see if there were other things we saw, OK? As we go through the list now, be thinking about your trip, what you saw, and what we have here and see if you want to add more to the list. Before we do this, I must ask the boys to sit back a little bit, Darrell, so that we'll all be together again. OK. Fine. OK. If you know the words, read along with me.

20 **All** Cow's tongue, freezer, a tub, cow's meat, machine, toy rabbit, radishes, cabbage, lettuce, sawdust, delivery doors, look-out point.

Teacher Are there other things? Debra.

Debra I want to tell the class that I, uh, I went through this door and saw David and...

Teacher You did? Very good. Let's talk about that later, OK? Shall we continue with this now? I would like to hear about that. Anything else that we saw?

Student Frozen foods.

Teacher Oh, what did you see? Can you tell us specifically what you saw?

Student That was in freezers?

Student Corn.

Teacher Frozen corn.

Students Corn, and peas, frozen oats.

30 **Teacher** John?

John I liked the watermelon they had. And the red potatoes, I mean in the...

Teacher Yes, I remember. Harold?

Harold That green, that purple lettuce with the cabbage... purple cabbage.

Teacher What do you want, Harold? Purple lettuce or purple cabbage.

Harold Cabbage.

Teacher Purple cabbage. Boys and girls. I know that you'll remember all the things we did, as I say, have such a marvelous trip. Now we have already listed very many things that we saw. Do some of these things seem to belong together in some way?

Students Yeah.

Teacher John, what do you think belongs together?

John The frozen corn and stuff can go with the freezer because they were in the freezer.

40 **Teacher** I see. All right. Let me do this. Let me put a mark by the few things that belong together.

Student You'll have to put a different mark for each one.

Teacher That's right. I would have to. Now, let's look at the list again. We did read through part of it and I think you'll remember them. Are there things that belong together, Kelly?

Kelly Candy machine and machine.

Teacher Candy machine and machine. Where is my other one?

Kelly Machine is right there.

Teacher Why do they belong together?

Kelly Because they're both machines.

Teacher I see. Are there other things that belong with this group?

Student Cow's meat and cow's tongue.

50 **Teacher** Cow's meat, cow's tongue. Why did you put them together, Peter?

Peter Because, um, the cow's tongue is also part of the cow's meat.

Teacher Do you agree with Peter? Are there other things that go along with cow's meat and cow's tongue? Kim?

Kim Cow's bone.

Teacher Cow's bone. Do we have that?

Kim Uh huh.

Students No.

Teacher No. We don't have it here. I'm looking at the names we have listed. Sharon, do you have other things that go together?

Sharon Radishes, cabbage, purple cabbage, watermelon, eggplant...

Teacher And many, many more. Just a minute. Sharon, why did you put those things together?

60 **Sharon** They are all vegetables.

Teacher All vegetables.

Student Is the watermelon a vegetable.

Teacher Watermelon?

Sharon Well, it's something to eat.

Teacher Well, OK let's do that. Let's start first. OK, Carol. Let's see, because you named so many, many things, Sharon. So let's back up a little bit and get all the ones you called out again and see if we all agree--OK--because you went so fast you lost me here. Let's use a triangle. You started with radishes. OK.

Sharon Cabbage.

Teacher Cabbage. All right. Do we agree so far that radishes and cabbage can go together?

Students Uh huh.

Teacher Why would that be?

70 **Students** Because they're both vegetables.

Teacher Do you agree, Darrell?

Student Purple cabbage, radishes, lettuce, eggplant.

Teacher John, do you agree we're still going together enough? OK. Do you see anything else?

Students Eggplant, watermelon, vegetables.

Teacher We're still on our little triangle.

Student Eggplant.

Teacher Eggplant. You're all agreed?

Students Yeah. Watermelon. No, they're not fruit. I mean vegetables.

Teacher Forrest, do you see other things listed on the board that go along with watermelon? Go ahead, tell us. What did you want to tell us?

80 **Forrest** Fruit boxes. I wanted to put them...

Teacher Would fruit boxes go along with watermelon?

Students Yes. No. Yeah.

Teacher What is your idea?

Student I put fruit in the fruit boxes.

Student Fruit boxes isn't a watermelon.

Teacher Oh, but we're actually putting it down because of the boxes, I think, in this case. You know we're putting them down because of the boxes. OK. Just a minute. Let's look some more. Are there other things that go along with watermelon?

Student Our freezer.

Students No.

Teacher Why would that be?

90 **John** 'Cause they belong in the freezer so they won't get cold, I mean hot.

Teacher Just a minute, John. I'm asking Kim because he suggested this. So Kim, what do you think? Watermelon and freezer?

Kim Because watermelons belong in the freezer.

Teacher Uh huh. OK. What do you think? How about the rest of you?

Students Yeah. Uh huh. No.

	Teacher	OK, Forrest, give us your idea.
	Horace	I think so.
	Teacher	OK. What do you think goes along with freezer then? I still see some space here and I wonder... Yes, Horace.
	Horace	Delivery doors should go in fruit boxes because the fruit boxes, they go into the storeroom. Like he said, the big trucks they stop on the street and they have a ladder and they go into that little room.
	Teacher	I see. Do we see look-out point belonging with anything?
100	Student	Delivery doors?
	Teacher	Delivery doors. Why will we do that, Michelle?
	Student	I know. So that maybe the people on the look-out point could look out and see when the trucks are coming so they can tell them when to open the door.
	Teacher	Is that the reason they have those points there?
	Student	No.
	Teacher	But I think it might be done, too, if they are so high up as they were. What did you want to say, Melinda?
	Melinda	Toy rabbits and fruit boxes might go together.
	Teacher	Oh. Why is it like that?
	Melinda	Because they're both in boxes.
	Teacher	Oh, they come in boxes? Linda, you mentioned that. What do you think? You mentioned the toy rabbit, remember? You think that might be?
110	Linda	I don't think they should because I don't see a fruit to a toy rabbit unless you can use the same box that the fruit box as you can for to put the toy rabbit in.
	Teacher	All right. I think that in that case, this is true. But we don't have to put it someplace, do we? How about the tub?
	Students	A tub goes with cow's tongue....No. Yeah. Cow's meat is in the tub because they wash the cow's meat in the tub.
	Teacher	I see, John. Someone else has her hand up. Let's see what Karen has to say.
	Karen	Put them altogether.
	Teacher	All right now, what do we call--I see a lot of them--so what do we call, uh, these things that...
	Student	Vegetables.
	Teacher	These things where we put little triangles...

Student	Vegetables.
Teacher	Vegetables. OK. All right. What else do we have? I'd like to see a hand. I'd like to see a hand. Just a minute, I said. OK, Mark Porter.
Mark	Sawdust.
Teacher	OK. You want to take that next. All right. I see sawdust, big saw, cow's meat, cow's tongue.
Child	We could say Meat Place.
Teacher	Shall we call it Meat Place?
Students	Uh huh.
Teacher	That's right. They were all there. Remember we all went into that room...
Student	We could call it cow's tongue, the tub, and cow's meat....
Teacher	Remember we went to that room where Mr. Christenson was busy and he said, "Wait a minute for me. This gentleman can tell you completely all about it." And that's where we saw all the sawdust, and the saw, and the cow tongue, and the sheep.
Student	And the cow's tongue in a tub...
Teacher	Just a minute. Do you think, Peter, that you can allow me to have time to write this down. All right. Can I erase this yet?
Child	No.
Teacher	No, not quite, can I. Next, we are thinking about the circle. Cow's tongue, freezers, cow's meat. Now, what can we call that, Mark Porter?
Mark	Meat?
Teacher	Melinda?
Melinda	Freezers.
Teacher	What can we call, uh, yes Carol?
Carol	Cow equipment. What goes inside of freezers.
Teacher	Jerry, you have a different name? If not, can we skip that until we think of one? Because we can work over this again. OK. Now.
Student	Mrs. Wong, I want to go to lunch. I'm getting hungry.
Teacher	Yes, I know. I erased one that had a circle. Now, can we put these into...a tub and all of this? That is still cow equipment, isn't it? OK. So you can erase this, too. Oh, what about all of the ones with the cross in front? We have toy rabbit, delivery door, look-out point, fruit boxes. What shall we call them?

Student Delivery equipment?

Student Delivery.

140 **Teacher** Fine. Delivery. Delivery boxes. Any other ideas? Delivery equipment?

All Yeah.

Teacher OK. May I ask Lee Ann to help me erase all the ones with the crosses right now? OK.

Student Machine equipment, freezers. How about the freezers? We have machines and candy machines. Is there a name for those, too?

Teacher Would you like machine equipment or machines?

All Machines.

Teacher I think you did very well. And you waited long enough for your lunch and I think you can go very soon now. I'll just add freezers, frozen corn, and watermelon down below. We didn't list all of the things that we saw. If we did, I'm sure we would have had a whole store.

Student Can we go to lunch now?

Teacher Thank you very much.

ANALYSIS MODEL

Theory on Concept Formation

1. **What are some points you remember from the film?**
   (individual responses)
2. **Why is the child's first labeling of his own house not evidence that he has formed the concept "house"?**
   The child's first labeling of his own house is not sufficient evidence because he needs experience with many houses before he is able to pull out the quality of "houseness."
3. **How does the child go about building a concept such as "house"?**
   The child builds the concept in several ways:
   - *a) He has many experiences with different kinds of houses.*
   - *b) He talks about houses with others.*
   - *c) He looks at what others label as houses.*
4. **In the film, Dr. McNaughton gave the example of "houseness" as it would be developed over the years. Can you explain briefly how the concept "table" might be similarly developed?**
   At five or six years of age the child would probably describe a table as "a place to eat at." By the age of nine or ten he might describe a table as having a top and four legs. Finally, at fifteen or sixteen he would describe a table as a piece of furniture.
5. **According to the film, what are some of the factors that affect the quality of a concept?**
   Factors affecting the quality of a concept are:
   - *a) maturation*
   - *b) social transactions*
   - *c) equilibration*
   - *d) experience*
6. **You may have mentioned "maturation" as a factor affecting the quality of a concept. What age group would be likely to define "house"**
   as a place to live in? *5 - 6 year-olds*
   as a place having four walls, windows, doors, a chimney? *9 - 10 year-olds*
   as a shelter against the elements? *15 - 16 year-olds*

7. Using another concept example, e.g., "dress" or "boat," show its stages of development as a child matures:

   Concept *(individual response)*

   Age group *5 - 6 year-olds* Definition *(individual response)*

   Age group *9 - 10 year-olds* Definition *(individual response)*

   Age group *15 - 16 year-olds* Definition *(individual response)*

8. Why are experience and maturation alone not sufficient to develop accurate concepts?

   Much talking needs to accompany the maturation process and wide experience in order for a child's understanding of a concept to be developed and refined. Talking also affords the opportunity to correct misconceptions which would affect accuracy of a concept.

9. What is the difference between a concept such as "house" and a concept such as "interdependence"?

   A concept such as "house" is a concrete one.
   A concept such as "interdependence" is an abstract one.

10. How does what Dr. McNaughton said about concept formation relate to the concept formation task of the Taba In-Service Education Program?

    In the Taba Program the children have many opportunities to form concepts by taking items in the environment and relating them along conceptual lines. Much talking is a part of this process.

    As the children move through the grades, they have the opportunity to group on an increasingly abstract basis.

    Through much talking the children see the kinds of items others put together and on what basis.

    With its questioning techniques, the concept formation task encourages flexibility in conceptual style.

CRITERIA FOR EVALUATING GENERALIZATIONS

There is considerable overlap between the two following categories of criteria and among the various elements under each of them. They have been arranged in this way merely to ensure that all the significant elements are included. No hierarchy is to be implied from the order.

A. Content

1. Accuracy--relates to errors and unwarranted inferences or generalizations, as well as to items which are imprecise rather than clearly wrong.
2. Completeness--concerns the extent to which all important aspects of the story are covered.

B. Process

1. Abstractness, Conciseness or Inclusiveness of the words used. The most effective are those which have the greatest amount and depth of the story's meaning invested in them. Less effective are those which are so abstract that their meaning is vague, and those which are relatively concrete. The least effective are those which are used the same way as in the text.
2. Qualification or Subordination in the form of either a relevant explanation or qualification of a main clause, or a complementary relationship between two clauses.
3. Tentativeness in the form of an explicit recognition of the conditional nature of a generalization or an inference within it.
4. Comparison in the form of an evaluation of relationships within the data or between parts of the story and data outside of it. The latter kind of comparison could also be described as an inference.

Each of these headings represents a way of processing data. Relative effectiveness under the headings is determined by an estimate of the amount of processing which appears to be involved.

These criteria may be used for describing characteristics, in which case the incidence of each in a particular group would be tabulated.

CRITERIA FOR THE EVALUATION OF GROUPING AND LABELING EXERCISES

As a step toward building adequate generalizations it is important to have children list, then group and label, items that they remember from such experiences as a story they have read, a trip they have taken, or a film or filmstrip they have seen.

The listing part of the exercise has a twofold purpose--to help children recapitulate the experience and to provide the teacher with information on the kinds of items the children remember or notice and those that they do not. The amount of time spent on this part of the exercise will vary, usually according to the newness of the experience for the class. If the class has never done this kind of exercise before, more time will need to be spent on remembering, savoring, and trying to think of more and more items. The teacher's role is to encourage children to remember as many different things as possible and sometimes even to suggest an item he remembers as a means of getting them out of a mental rut, or a conspiracy of silence.

When the list is as complete as it can be, the teacher asks the question: Which things do you think go together? Or: Which things could we put together? (Or whatever question of this kind is best understood by his class.) It is important to have children explain why they grouped the items in the particular way they did and why they used a particular label.

Children tend to put things in groups for different reasons and some individuals--and sometimes a whole class--tend to use one particular method more than any other for all their groupings. Having discovered their characteristic style, the teacher will have information which can be used in a number of different ways. For example:

1. as a means of encouraging other ways of grouping. (Flexibility is an important characteristic in effective thinking.)
2. as a means of measuring the kinds of changes in grouping styles.
3. as a means of determining the level at which a child or a class is working, (assuming that class-type groupings are the most complex).

Most groups can be classified under one of the following headings:

1. Functional (or Locational). Children put things together because they are used together or because they are often found together in the child's experience. For example:
   "Horse and cart because the horse pulls the cart."
   "Hat, coat and boots because I wear them when I go out."
   "Chair, table, and tablecloth because they are in our dining room when we have dinner."

This is an essentially egocentric response, since it talks about what happened to me.

2. Descriptive. Children put things together because they are of the same shape, color, texture, or material. For example:
   "Box, toy car, and block because they are all made of wood."
   "Rain, cloud, and fog because they are all water and are all white."
3. Class. Children put things together because they belong to a class of things, the name of which is abstract in that it does not refer to any tangible quality like color, shape, or material, but rather to an abstracted quality of the whole group. For example:
   "Rain, cloud, and fog because they are to do with weather."
   "Car, bus, train because they are transportation, or because they are to go places in."
4. Mixed. Children may start a group using one kind of grouping criterion and then switch to another one part-way through the exercise. That is, they lose the thread of reasoning applying to the whole group and, instead, look at the last item in a group and add another on a different basis. For example:
   "Pencil and apple because they are in my school bag" (functional), followed by, "Banana because apple and banana are fruit (class).

Other scores which can be used are for:

1. Number of items that are spontaneously used in more than one group. This displays a kind of mental flexibility which is a desirable quality in thinking about the ways things go together.
2. Number of different ways items can be grouped by a child when he is asked to do so. This can also be used as a flexibility

score.

Note that moving from a functional, descriptive, or class to a mixed type of group would not be considered an improvement and would therefore not rate a flexibility point.

Flexibility is basic to good thinking. A teacher should try to develop this in his students inductively, not by telling them, but by having them respond to questions like: Are there any other ways? Can anyone see another way these things can be put together? Or: Can anyone think of another label we might give this group? Occasionally--very occasionally--a teacher might say to a class: Look at this group. Why do you think I put these together? What would you call it?

[The styles of categorization discussed in this paper (functional, descriptive, class, and mixed) correspond respectively to the following terms in Dr. Sigel's paper: Relational-contextual, descriptive, and categorical-inferential.]

THINKING TASK	THOUGHT LEVEL ONE		THOUGHT LEVEL TWO		THOUGHT LEVEL THREE		FUNCTION OF THE TASK
	Question Asked	Purpose	Question Asked	Purpose	Question Asked	Purpose	
CONCEPT FORMATION	What did you see? hear? read? note? What do you know about ___?	To get a common body of specific data in front of the children. (Requires recall and differentiation.)	Do you see some ways you think these items could go together? What makes you think so?	To give children the opportunity to group the specific items of data according to the relationships they see. (Requires seeking a basis for grouping, identifying common properties)	What names could we give to these groups? How could we label these groups?	To give children the opportunity to label the groups they have formed. (Requires symbolization, subsuming, synthesizing.)	To give children the opportunity to 1) form concepts by organizing large amounts of data through recognizing common attributes, 2) become alert to the varieties of relationships that might exist among data, 3) have a stepping stone to generalizing.
INTERPRETATION OF DATA	What did you see? hear? read? note? What do you know about ___?	To get a common body of specific data in front of the children. (Requires recall and differentiation.)	What similarities do you see? differences? What do you think might be the causes of ___? effects? What makes you think so?	To give children the opportunity to relate specific items of data according to the relationships they see. (Requires comparing, contrasting, seeing cause-effect relationships.)	What could you say generally? What general statement could you make?	To give children the opportunity to generalize about the relationships they see. (Requires generalizing, synthesizing.)	To give children the opportunity to build the skill of generalizing by processing data and arriving at conclusions and generalizations.
APPLICATION OF GENERALIZATIONS	What would happen if ___? What if ___?	To give children the opportunity to predict or hypothesize. (Requires analyzing the nature of the problem or situation and retrieving relevant information.)	What would it take for this to happen? What consequences might you expect?	To give children the opportunity to determine the causal links leading to predictions or hypotheses; to make further predictions or hypotheses. (Requires going beyond the data, making inferences.)	What could you say generally? What general statement could you make?	To give children the opportunity to generalize about the relationships they see. (Requires generalizing, synthesizing.)	To give children the opportunity to apply generalizations to new, changed, or hypothetical situations in order to test their validity.